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1941

Industrial FINISHING

Published Monthly

TECHNOLOGY DEPT.

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Production in your plant can slow down alarmingly if your Finishing Equipment is old and inefficient. Slowdowns cut into profits—plenty. To scores of shrewd manufacturers, Mahon engineers have proved conclusively that a complete, modern Finishing System—properly co-ordinated to keep production rolling through—is a very definite investment. Call in Mahon trained Finishing experts. Get their advice and recommendations. It costs nothing. It may save you thousands of dollars.

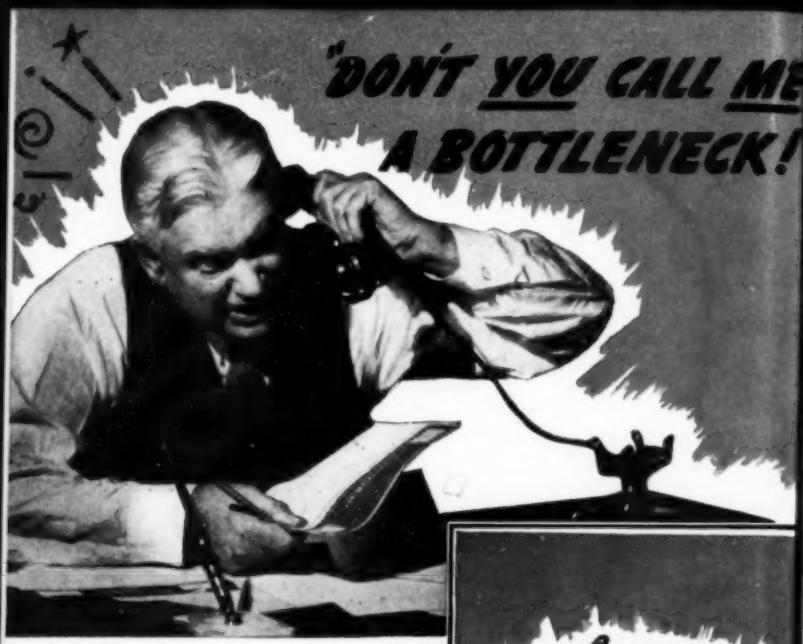
THE R. C. MAHON CO.
DETROIT — — CHICAGO

Complete Finishing Systems including: Metal Cleaning Machines, Rust Proofing Machines, Hydro-Filter Spray Booths, Ovens of All Types, and other Special Production Equipment.

A TYPICAL MAHON INSTALLATION

Shown in this compact installation, for the Carman-Stowe Lamp Company, Cincinnati, Ohio, is equipment for Alkali Wash, Hot Rinse, Bonderite, Cold Water Rinse, Dry-off Oven, Spray Booths, Enamel Baking Oven—all completely co-ordinated.

MAHON



IF YOU are having difficulty keeping up with current demands for faster, more economical production you may find the answer in a Roxalin finish.

For example, Roxaprene, a new speed synthetic, has become the largest selling finish of its type because it speeds up the finishing department as much as 50% without extra equipment.

Why? Because Roxaprene* bakes in about one-half the time required by ordinary synthetics at low temperatures. Furthermore, Roxaprene air dries to the touch like lacquer, permitting light assembly operations in a space of minutes, and converts overnight to a hard corrosion resistant film.

Roxaprene is but one example of Roxalin's ability to engineer finishes to do a specific job . . . better and faster.

Why not get in touch with us? We may be able to help you.

Rincontrol, the uniform textured enamel, is another Roxalin time-saver because it cuts rejections and thus prevents re-working.

*Roxaprene is ideal for use in infra-red equip

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Prompt deliveries in the middle west are made from our Chicago and Cleveland ware

ROXALIN *Flexible* FINISHES

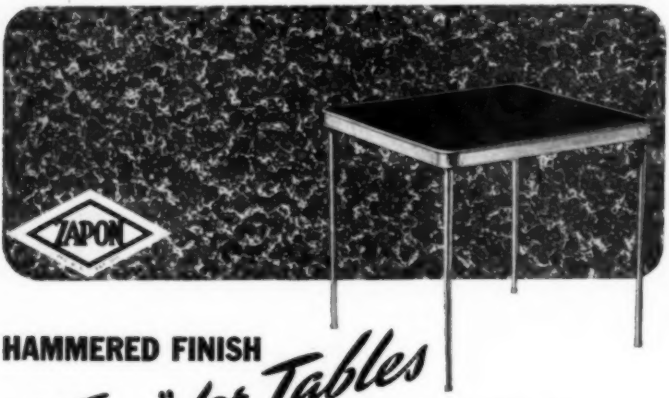
"WHERE THE FINISH COUNTS USE ROXALIN"

GKS Truck Type Ovens

. . . In Standard Sizes, an innovation in the industrial baking oven field which permits the addition of standard units in order to increase an oven's size . . . more Economical, because Standard Size Ovens are production items . . . and you may purchase additional space with the savings!

. . . Standard Sizes mean faster delivery, easy, economical assembly by YOUR maintenance crew, standard replacement parts—so if you use Industrial Ovens anywhere, write for particulars concerning your needs.

GEORGE KOCH SONS, INC. EVANSVILLE INDIANA



HAMMERED FINISH

"Tops" for Tables

and many other articles

Novel but endowed with sound, practical qualities—that's Zapon Hammered Finish. Illustration shows Zapon bake formula as used on bridge table tops by the Norcor Manufacturing Company, Chicago. Applied directly on Masonite, the finish gives a beautiful, wear-and-tear resistant coat that has proven most satisfactory in service.

Zapon Hammered Finish is normally baked. For specific requirements where baking is impracticable, an air dry modification is available.

Zapon Hammered Finish is proving its worth not only on table tops but on a wide variety of other articles.

EASTERN SALES:
ZAPON DIVISION
ATLAS POWDER COMPANY
Stamford, Conn.

ZAPON

WESTERN SALES:
ZAPON-BREVOLITE DIVISION
ATLAS POWDER COMPANY
North Chicago, Ill.

INDUSTRIAL FINISHES

Seventeenth Year of Publication

Industrial FINISHING

Reg. U. S. Pat. Office

Published Monthly in the Interest of Modern Production Finishing

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Letters from Readers

OF INDUSTRIAL FINISHING

These letters (and many others) were answered recently by the editorial department, but are published here to reveal certain interesting trends of desire and activity in the industry, and to encourage additional inquiries, comments and suggestions. Further information about any of them can be obtained by writing this office.—Editor.

Finishes for Plastics

We are interested in obtaining the names of the makers of enamels mentioned in your March, 1941 issue, page 82, article entitled, "Enamels for Plastics". Several makers of plastic buttons and other small articles have sent us lots of their products to be enameled in our "Speedip" enameler, intending to purchase a machine, but we have been unable to find an enamel that is satisfactory. The enamel referred to seems to show us the way out.—R. M. Co.

Information supplied.—ED.

Fumed Oak

Please send us name of company referred to in the Q. & A. entitled, "Fumed Oak Finish on Furniture", on page 72, of March number of INDUSTRIAL FINISHING.—K. L. Furn. Co.

Scratch Repair

Long time ago we bought from a paint house a stick, "Mar Stick". Sometimes our dealers complain about little scratches that appear on chairs and furniture due to the rough transportation handling.

Kindly advise us where we can find some kind of sticks, liquid, wax or something that we can obtain to send to our dealers to fix, as well as possible, these scratches. Our chairs are in finished golden oak and our furniture is walnut. Of course, we can supply our dealers with stains and varnishes, but we want something more practical.—A. A. (Cia. Manufacturers De Muebles) MEXICO.

Perhaps you mean "Mar Stik", made by one of our finish manufacturers. We are sending you names of several concerns that may be in position to supply what you need.—ED.

Non-Skid Deck Paint

Since publishing an inquiry under the above title in March issue (Page 78) we have received letters from several manufacturers who can furnish such a material.

One manufacturer sent a color card with painted color chips. This manufacturer's non-skid deck paint is claimed to be "excellent wearing, non-

The International Paint Co. says: "Use Noskid deck paint and be sure footed."

Just **HOW** *good is O. K.?*

IT'S **surprising** how "smug" we all become—**so** satisfied with what we have. For example—'till we've driven a new car we don't realize how outmoded our old one is, or what new developments have been perfected. The same applies to **many** items of plant equipment and FINISHING MATERIALS.

By the same logic we say sincerely that unless or until you have tried some of our newest products you will never know how high a standard you may set for **your** O. K.

VINDOLAC—(perfect top coat)
3500 Sealacquer
DU BAR BLEACH
WATEROIL STAINS
NUOIL FILLERS
NU GLAZE
DOLCO SHADING
1900 Cleanup Polish

V. J. DOLAN & CO., INC.

Manufacturers of INDUSTRIAL FINISHES

1830-32 NORTH LARAMIE AVENUE CHICAGO, ILLINOIS

R-200 SPEEDIP ENAMELER

FOR LARGER PARTS

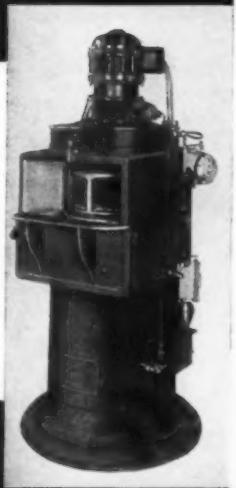
- Has basket capacity of 1206 cu. in.—provides ample room for larger parts.
- Does perfect lacquering or enameling on metal, wood or plastic parts. Coats basket load in sixty seconds. Excellent for air dried or baked finishes.

Saves Time and Material

- Outstanding features include automatic hydraulic tank lifting controls and explosion-proof motors and switches throughout with extraordinary simplicity and ease of operation.
- Surplus finishing material returns to tank within machine, none wasted and no messy handling of dripping basket or parts.
- Send us some of your products. We will gladly finish them for your inspection.

Write today for complete details.

[Patent Number 2102819. Other Patents Pending.]



RONCI MACHINE COMPANY

45 RIVER AVE. • PROVIDENCE, R. I.

— UNIPRIM —

ON WOOD — METAL — COMPOSITIONS!

for Lacquers and Synthetics . . .

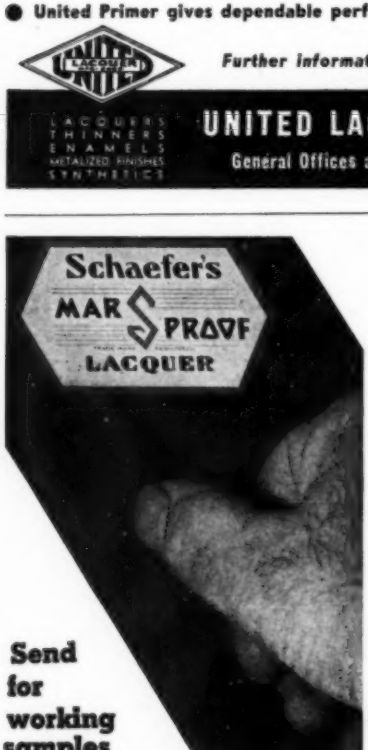
- **One coat provides excellent coverage—has extraordinary leveling and hiding properties—can be knifed or sprayed on—dries fast and sands easily.**
- **Supports topcoat (lacquer or synthetic) unusually well—has excellent adhesion and flexibility on metal, wood or composition products.**
- **United Primer gives dependable performance at low cost.**

Further information and samples sent on request.

LACQUERS
THINNERS
ENAMELS
METALIZED FINISHES
SYNTHETICS

UNITED LACQUER MFG. CORP.

General Offices and Factory: Linden, New Jersey



Send for working samples

try to scratch or mar it!

Here is a lacquer finish that cannot be marred or scratched with the thumbnail, or other destructive agencies—a much tougher piece of goods than the ordinary lacquers. It produces a splendid transparent finish of full depth on maple, walnut, gum, mahogany and other cabinet woods . . . It is made in either the Clear Gloss Rubbing or the Satin Finish. Mar Proof Lacquer Sealer is recommended for first coat.

THE SCHAEFER VARNISH COMPANY, INC.

Louisville, Kentucky

abrasive and waterproof." Evidently there is a considerable demand for it, in the interest of safety.

Also, a number of readers wrote in and suggested various ways to make ordinary deck paint non-skid; for example, mixing into it fine granulated rubber or abrasive dust of suitable uniform size.—ED.

Decalcomanias

Please forward name and address to one or two companies manufacturing decalcomanias, and ask them to please submit materials.—L. Chair Co.

Graining Paper

We would appreciate receiving the names of manufacturers of transfer graining paper for reproduction on wood and for patching purposes where veneer has been sanded through. We understand, from some previous issues of your magazine, that these materials are obtainable.—J. U. Co. (Furniture).

You have given information about a grained paper, to a reader of your book. I would like to receive this information also, as I need it for my purpose in the furniture field.—J. G.

Information forwarded promptly.—ED.

Electric Burn-In Knife

Recently an article was noted in your magazine concerning the Ever-ready electric burning-in knife with automatic heat control. We are interested in securing more data concerning this tool and suggest that you send us the address of the manufacturer, so we can ask them to send us complete data.—D. F. Co. (Furniture).

It's a product of H. Behlen & Bros., 12 Christopher St., New York, N. Y. —ED.

Metal Filler

We have a problem which has caused us some difficulty and we have been unable to locate a suitable material to correct the trouble. Perhaps you know of some manufacturer who can supply an item to help us.

We require some sort of a filler that can be used on sheet metal to fill irregularities in the metal surfaces, such as spot-weld marks and cracks or seams where the metal is joined to-

"SPRING"

CALLS FOR DELICATE

PASTEL SHADES

Decorate your product with Cotton, Wool or Rayon Flocks in colors chosen from our "carried in stock" line.

The cost is low — but your product will bring a better price, with increased profit to **you.** Hundreds of novelty items are taking on new life and sales appeal through the spray gun or screen stencil method of flock application **—now.**

Write for Color Card, Samples and Prices to

CLAREMONT WASTE MFG. CO.

CLAREMONT, N. H.

The country's leading flock manufacturers

TIME AND CHANGE

What is more certain than time and change? Each day sees some new advance by science, chemistry and industry. Today's successful finishing material and production finishing operation becomes tomorrow's failure.

Alert manufacturers call on Walker's modern laboratory staff to help them solve their finishing problems and keep them abreast of latest developments in finishing materials and finishing production methods.

Walker's modern production finishes include . . Chromate Primers . . Fillers . . Synthetic Enamels including High Speed short bake . . Lacquers for every purpose . . Wrinkles and a variety of other decorative, protective and specialty finishes.

If you want to improve your finish, speed up production or save money in your finishing operation on regular production or on defense orders "Call on Walker."

H. V. WALKER CO.

MODERN PRODUCTION FINISHES

Elizabeth, New Jersey

gether which, after drying, can be sanded down to a feather edge by using a sanding disc or drum. This material would be used underneath baked finishes.

If you know of any such item we would greatly appreciate your advising us as to where it can be procured. —A. L. Co. (Designers & Manufacturers.

Information supplied.—ED.

Picture Frame Finish

Will you kindly tell us the name and address of J. M. Co., whose interesting paragraph appears on page 92 of March, 1941 issue? We manufacture frames such as you have seen around lithographs advertising beer, whiskey and other national products. We are interested in the lacquer referred to by J. M. Co.

Most of these frames are made of red gum stained to a walnut or mahogany; then finished with a high-gloss lacquer. A bright red is often used; the shade, as we know it, is called "Fire Engine Red".—W. F. Co.

One Coat Finish on Maple Chairs?

While at the New York Market we saw some chairs in maple color. Upon inquiry we were told this was a one-coat job right over wood, without any stain, all in one operation. We would like to find out the manufacturer's name of this maple finish if it is possible. Anything you can do for us will be greatly appreciated.—P. A. Co.

"Hammer" Finishes

Refer to February issue of INDUSTRIAL FINISHING magazine; subject, "Hammer Finishes". Please furnish us the names of manufacturers who can supply us with the necessary materials for this type of finish.—S. N. Co. (Fluorescent Lighting Fixtures).

Information supplied.—ED.

Flock Finishing

Please send me all the information you have regarding the use and application of flock materials.

I am interested in starting a custom finishing shop and would like to know about flock as a sound deadener, as an insulator against heat or cold, whether it can be treated to be fire resistant, and if it can be easily cleaned

(Continued on page 78)

THE WHITE TIE AND TAILS OF ORGANIC FINISHING

If you want to "dress-up" your product—to give it a finish of the highest quality—the answer to your problem is simply VEDOC! For VEDOC produces a finish that is unsurpassed for beauty, for durability and for satisfactory performance. VEDOC is designed to be used in the average production setup provided for the use of synthetic enamels. It is available in either white or black. Application is by spraying or dipping. Get full information today, about this newest FERRO Finish and about our complete line of baking and finishing equipment. Your job will be individually designed and built to fill *your* requirements!

FERRO ENAMEL CORPORATION

CLEVELAND, OHIO

FEROC
PORCELAIN ENAMEL

Vedoc FINISHES
LIQUID PLASTIC

Kindly mention INDUSTRIAL FINISHING when writing advertisers

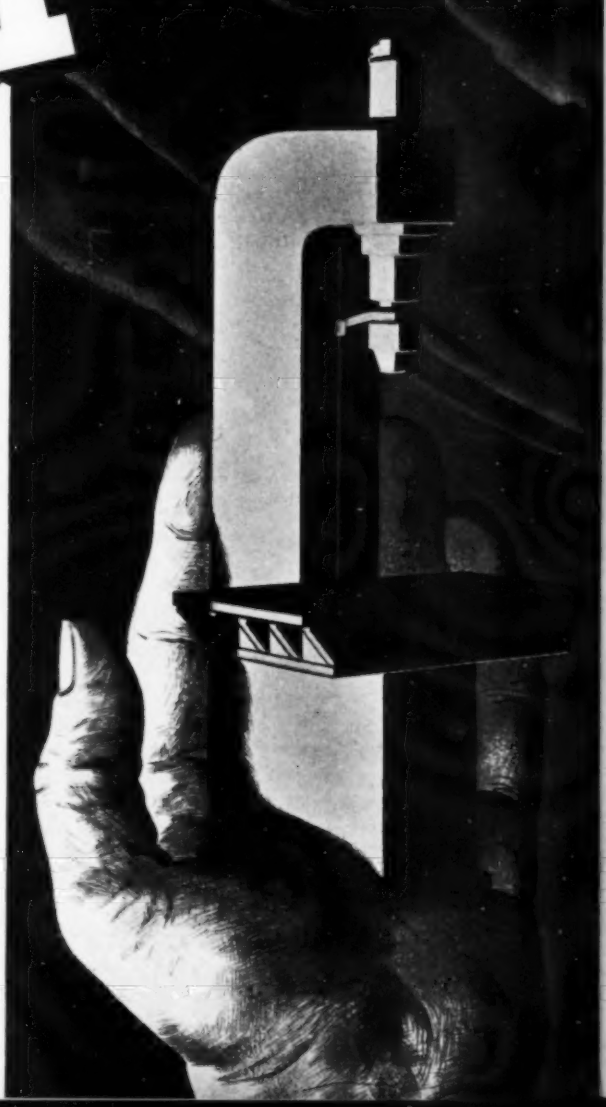
YOUR FINISHING?

MACHINE TOOL FINISHES BY *Lowe Brothers*

★ ★ ★

FIRST AND FOREMOST CHOICE OF A VITAL DEFENSE INDUSTRY

Backbone of the National Defense Program is the great and critical Machine Tool Industry, comprising hundreds of precision makers who demand finishes in keeping with the performance and fine qualities of their equipment. Lowe Brothers cooperated in stabilizing the color standard of finishes for machine tools to achieve perfect functional utility, reduce eyestrain and fit perfectly the equipment and its environment. And Lowe Brothers Machine Tool Finishes assure ultimate economy and durability. They stand up longer under rough usage, resist moisture, retard rust and offer the utmost resistance to chipping, flaking and discoloring. They resist abrasion, hammer blows, hot oils, cutting compounds, greases and alkalies. No wonder that Lowe Brothers Finishes are the recognized standard of the Machine Tool Industry.



ING PROBLEMS NEVER END

Nothing is as constant as change. This fact is well recognized by Lowe Brothers Research Chemists and Field Technicians. Their job is to keep in step with the newest developments in the science of finishing today's modern industrial products.

So, while we're mighty proud of the fact that Lowe Brothers Machine Tool Finishes are the standard for this great and critical industry—we're far from being complacent. In other words—we know that your finishing problems never end.

So consider your finish in the light of modern standards of ultimate economy and efficiency. Does it cost too much because it's long on rejects or short on durability? Does it require too many coats—take too long to apply or require needless rubbing or sanding? Or maybe it costs too much (or too little) per drum, but is expensive in the ultimate cost per unit, as contrasted to its utility.

Whatever you make, remember that Lowe Brothers Industrial Division has one function only and that is to help your products serve better, sell better—and cost less. Why not let us start working with you (and for you) today?

Industrial Division
THE LOWE BROTHERS CO.
WAYNE AVE. DAYTON, OHIO

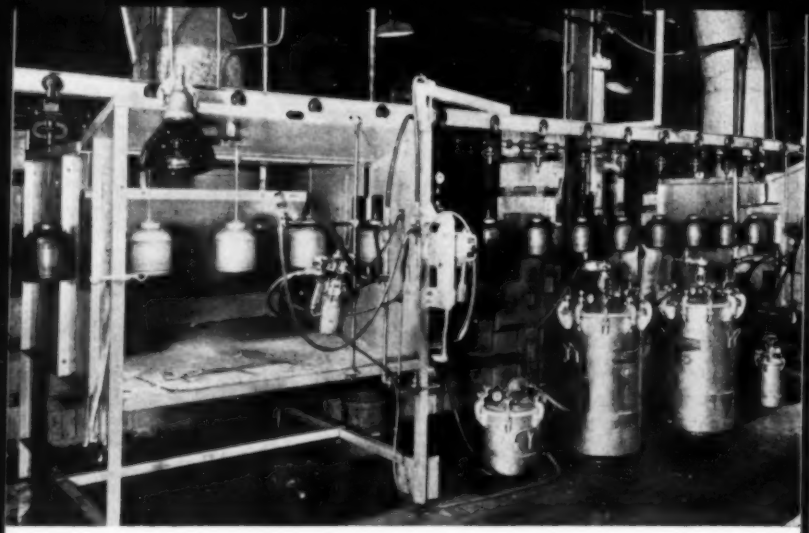
* * *

Special Attention Given Inquiries Concerning Products For National Defense

FOR PRODUCTS WHICH SERVE AND SELL BETTER

Lowe Brothers

SPECIAL INDUSTRIAL FINISHES



Increasing Production in

WE smile when we look back to the finishing methods of 20 years ago, and 20 years from now we will smile at the finishing methods of today—yet then there were probably as many finishing supervisors who thought they had achieved perfection in finishing procedure as there are those who think the same thing today. *It is wise to accept the assumption that no matter how efficiently we perform an operation today, tomorrow will bring a still more efficient method.*

The accelerated tempo of industrial production has placed increasing demands on many finishing departments. To meet this extra demand, it would be logical to expand present finishing facilities to their maximum limit before enlarging floor space or adding extra shifts. There are many paint shops where the latest equipment and men working at a rapid pace seem to indicate top speed performance, yet when a careful beneath-the-surface check-up is made, it shows their performance is only a fraction of their maximum potential output.

I have had considerable experience in reorganizing paint departments and, on more than one occasion, production was stepped up as high as ten times what formerly prevailed, and sometimes even more. It is surprising how often the same underlying principles of production control were used in entirely diversified lines of manufacturing. In the hope that some of the readers can find some point of value—some factors applicable to their individual requirements—I present these principles that enabled such increases in production.

BY JAMES A. BEDE

Photograph, courtesy of The DeVilbiss Co.

Your Finishing Department

Basically, the problem consists of increasing the sprayers' output to its absolute maximum, as the nucleus or hub of the entire finishing system, and then increasing proportionately all other tangent operations such as degreasing and baking.

The tangent problems are relatively obvious and their solutions are more or less self apparent. The difficult problem is how to increase the sprayers' output to its peak. The general plan I have followed can be expressed in the following rule: *Arrange to keep the spray guns actually spraying 60 seconds per minute; 60 minutes per hour.* To do this literally is well nigh impossible; but that is the goal to work for.

We can use this rule to evaluate the actual productivity of a sprayer working from a pressure system. Measure the volume of material coming from the spray gun by shutting off the air to the gun and ejecting the material into a graduate or a measuring can. This enables us to determine the rate of material flow, which will vary according to the pressure in the tank, viscosity, size of fluid tip, etc.

Let us assume, as a hypothetical case, that the rate of flow is five gallons in 30 minutes. If the sprayer actually requires two hours to spray this amount, his productivity rate can be expressed as 25%. A 100% rating, of course, is next to impossible. A 50% rating can be considered good in the average plant. I have often seen it as low as 5% or 10%, which certainly should be improved. This evaluation test is predicated on the assumption that the spraying is performed in an efficient manner, with-

out any wasteful practices. It is advisable to periodically take coverage tests to check the mileage.

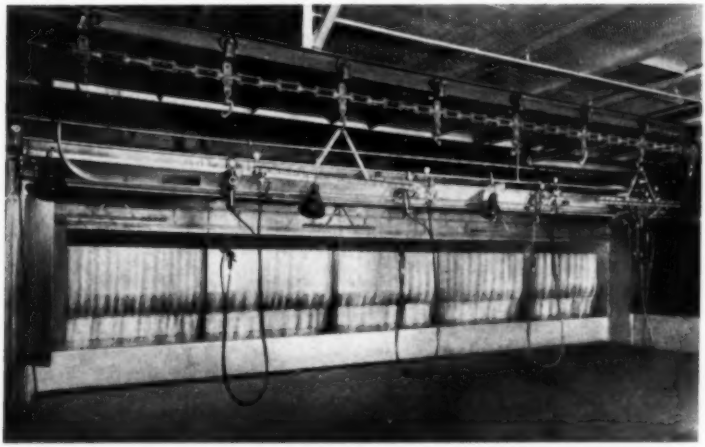
Arranging Facilities to Permit Greater Production

Now we come to the problem of how to arrange the work so that the spray guns can be maintained in constant operation. The general objective is to confine all of the sprayers' activity to that of actual spraying. All the movement of work pieces into and out of the spray booth, should be done by either a conveyor or by helpers. Where a conveyor system is used, the movement of parts through the spray booth is predetermined. How well this is timed can be ascertained by the evaluation test just described. Where the conveyor system is not used, and the parts are small enough to be sprayed on a turntable, a greater flexibility of operation is available, enabling a much greater fluctuation in the relative degree of efficiency.

I advocate using, at all times, two turntables in the spray booth. A helper can then take away the painted piece and replace it with an unpainted one while the sprayer is spraying a piece on the adjoining turntable. The sprayer's output is stepped up from two to four times as much as it would be if he were to work alone, for a considerable amount of lost motion is thus eliminated. Furthermore, this plan of working enables the sprayer to concentrate on the job of spraying and not be distracted by what goes on back of him.

Spraying Work in Multiple

Still greater increases in production can be obtained if the parts can be racked up and sprayed in batches. Not only is the work



This room is entirely under pressure, the air coming through the grating shown above. Notice the water flow at back of spray booths—and the overhead conveyor for moving products that are sprayed. The room is also interesting because exactly opposite this view is a duplicate booth on the other side of the room. Photo, courtesy Binks Mfg. Co.

turned out many times faster, but considerable material saving can be had, for the overspray from one piece strikes the adjoining ones. This material saving can range from 25% to 40%. Obviously the pieces should be baked or dried on the rack or tray on which they were sprayed. To remove or transfer them, one by one, is an unprofitable wasted operation. I wish to call the readers' attention to a complete article on this subject, appearing in the August, 1937 issue of this magazine.

After the method for handling the work pieces has been satisfactorily worked out, attention should be given to the spraying operation itself. The equipment should be in perfect condition and operated at peak efficiency.

Preheat Your Enamel

As an added aid to faster spraying, I recommend heating the enamel before spraying. Heating the enamel lowers its viscosity, making it easier to atomize. It not only allows the sprayer to apply the enamel faster but the resultant film flows out smoother.

If it is found that the oven is not quite capable of handling the volume required, several possible alternatives are open. One is to use the newer-type quick-baking synthetic material. Another is to use air-drying finishes on some of the items. Sometimes some such arrangement can be arrived at without conflicting with the major finishing schedule, and it relieves congestion at the oven.

By following the general procedure outlined in this article, definite increases in production can be expected. To cite a specific example that can be considered as an average, the spraying of air-conditioning registers (6x12-in.)sprayed at the rate of 110 per hour by one man, was stepped up to 960 per hour. On smaller fabricated parts, the increase is proportionately larger.

Colors Popular for Spring

The regular edition of the 1941 Spring Woolen Card containing 60 new shades has just been released to the trade by The Textile Color Card Association of the U. S., Inc., 200 Madison Ave., New York, N. Y.

Especially emphasized in this spring color line-up are new developments in the natural, tan to brown range, which includes warm golden earth and brown honey types, as well as subtle cocoa versions.

Blues again figure prominently, particularly the national defense shades, as Marine Corps, West Point and American Navy, New aqua and petrol tones represent the greenish blue range. Other smart color notes include reseda and smoky yellowish greens, coral and pinkish clay tones, greenish gold and pastel taupe.

Bold brilliant sports hues in this woolen collection highlight orange, sunny yellow, cerise rose, turqoise, reddish purple, vibrant green and yellowish red.

Ferro Enamel Brochure

A new brochure, issued by Ferro Enamel Corporation, Cleveland, Ohio, announces a new and exclusive feature of Ferro clay, used in processing porcelain enameled metal products. This is "Controlled Consistency," which means that the "set" or "consistency" characteristics of Ferro clay are now laboratory-controlled and kept within narrow limits.

The new uniformity is made possible, brochure states, by Ferro's processing and testing methods, developed over a period of nearly 15 years' time. This, in turn, offers the porcelain enameler an opportunity for the closer control of "setting-up" procedures in the mill room and likewise the reduction of reject-hazards.

The Ferro Enamel Corporation produces Green Label and Black Label Domestic Blend Clays, used throughout the Porcelain Enameling Industry in the production of porcelain enameled ranges, refrigerators, washers and other products.

In 1938 the company built a complete new plant for clay-processing, which involves crushing, special drying, purification and automatic packing, in conjunction with an elaborate system of plant and laboratory control work.

More and Better Results in

BY WILLIAM F. HYDE
Graining Plate Division
The American Electrotype Co.

IN THE past several years it has been my privilege to install graining plates in a large number of varied industries. During this time I have noted the problems that confront users of metal plates and the methods used in overcoming these problems.

Production seems to be the greatest problem in graining. Our company has found many ways to increase production, and I will mention some of them in this article.

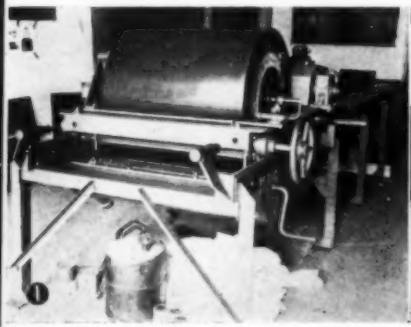
Washing and drying the graining roll takes up about 50% of the time. The best way to wash and dry the roll is to use the automatic cleaning and drying machine. This enables you to cut your non-productive time in half and save on wipers. The operator does a much better graining job too, as he eliminates wiping marks and pin holes.

One company estimated that the cleaning and drying machine paid for itself in less than a week. The amount saved by not using wipers, and the labor costs which were cut in half—these two items—made up the difference for what was invested in the machine.

Another method by which production can be increased and by which costs can be cut, is to use a power-graining machine. This machine does all types of flat surface graining. It has a cycle time of 25 seconds. In other words, if you were to grain one flat piece at a time you could grain 60 pieces an hour. If you did two, three or four pieces at a time, your production would double, triple or quadruple. The machine will grain a surface as large as 31x80-in. It is automatic and will increase production and cut the cost of graining substantially.

Correct Size Rolls; Convenient Shop Layout

Still another method employed to increase production is to obtain and use the right size rolls. In many cases I have found that instead of graining one object, two or three could be grained by in-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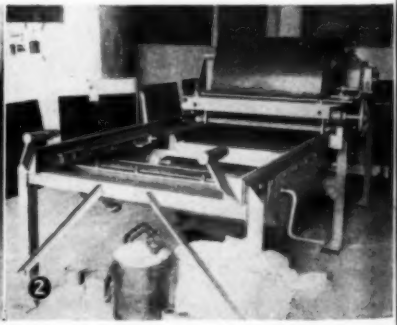
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...lts in Mechanical Graining

creasing the size of the roll, or by using rocker arms instead of rolls. On some jobs, holding the object to be grained and rolling it on the roll, will work faster and do a better job.

System and layout in a plant will help to increase production. I have found cases where the plate was in one corner of the room and the operator had to walk at least 10-ft. to the object he was graining. It did not look important at the moment but, when figured in time, over an hour was wasted in walking back and forth every 8-hour working day. Space, light and heat are all important in doing a good graining job and increasing production.

The care of a graining plate is an important factor. I will enumerate the different ways used to obtain the maximum useful life out of a graining plate.

1) Wash the plate at the end of each working day, using a brush especially made for this purpose.

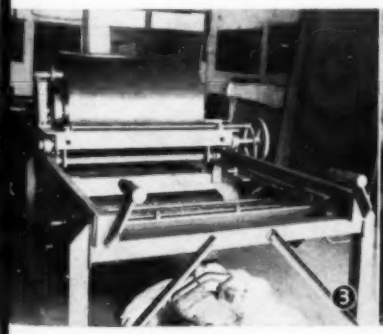
2) The scraping blades must be inspected before they are used. If small nicks or low worn spots are found, the blade which scrapes the plate should be replaced or sanded with No.00 sandpaper lightly until the nick or low spot is out.

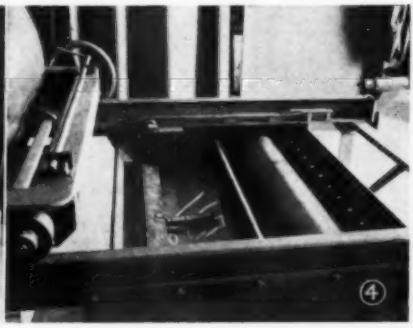
3) When scraping the plate, the scraper should not be pressed too hard. In other words, if the blades are the proper width and are placed correctly on the plate, lightly dragging the scraper over the plate will be sufficient. The life of the graining plate will increase if this method is followed.

4) The ink used on the graining plate should be tested for the presence of any harmful abrasives which might scratch the plate or wear it down excessively.

5) The plate should be cleaned once a week, using certain methods

Illustrations of power graining machine.
1) The graining roll in starting position.
2) Graining roll passes over inked graining plate and picks up the grained pattern, which is later transferred from the roll to the flat surface being grained.
3) Rear view showing cleaning attachment; also the rails which elevate graining roll.
4) The cleaning apparatus; also, spreader and scraper used to apply ink to the plate.





which I will be glad to furnish if requested to do so through INDUSTRIAL FINISHING. This is important as all plates will gradually lose the design through packing of the small pores with dried ink. The reason I am not giving the methods in this article is because graining plates are different and several methods are correct to use in cleaning each different plate.

6) The blades in a scraper often cause the plate to wear out. Many owners of plates still use the old type of heavy blade. This type of blade should be replaced with a .006-in. clock-spring blade, cut to fit the plate. The .006-in. blade should be braced with a .012-in. blade, placed about ¼-in. above the scraper edge. If the blades specified here are used, the scraper can be pulled across the plate, and such objectional features as rapid wear, scratches and nicks in the plate will be eliminated.

7) Low spots in a plate often cause trouble. I could explain how to take out a low spot in a plate, but I know that the best thing to do is to call in the representative who sold the plate and obtain this service from the manufacturer. Plates can be ruined by trying to take out low spots. In our own business one man has spent several hours correcting this fault. For this reason I feel that it would be cheaper to obtain expert service from your source of supply.

Conditioning the Graining Ink

Finishing materials often cause many problems in graining. When thinning inks, I have found that impressions are sometimes lost and the full quality of a graining plate becomes blurred. Ink can be too thin or too pasty. The way to test the viscosity of ink is to gradually thin it down to a point where it can be flowed out of a can. Strain the ink through a fine cloth so that the grit, skins and dirt are all removed. I have found oleum to be the best thinner to use in ink, as it is slow-drying and keeps the body of ink intact. In cases where the ink has a dry appearance a small amount of linseed oil can be added.

The organization I work for has had years of experience in graining and what help this article may be to a graining plate user, was obtained through the knowledge gained from these numerous experiences.

I hope that if a user of a graining plate is having difficulty in any way, he will write INDUSTRIAL FINISHING magazine. Our company wants every user of a graining plate to be completely satisfied and we will be glad to help, if contacted.

Let me add that graining does add "eye appeal", which helps to sell articles. Any company that does not use graining should investigate the sales possibilities of a grained article or grained surfaces.

Heat-Resisting Paints

SECURING an attractive and durable finish on metal parts subjected to high temperatures is a problem which has been solved through the use of paints employing zinc dust in their formulation, according to a recent bulletin of the New Jersey Zinc Co.

In part, the bulletin says: "Zinc dust, incorporated in the softer, heat-resistant types of quick-drying resin vehicles, particularly those of the alkyd variety, provides a particularly adherent and protective coating for hot surfaces. In contrast with many other hot stack

paints, where disintegration of the vehicle so frequently causes embrittlement of the paint and consequent flaking and peeling, zinc-dust paints tend to maintain their distensibility for a longer period of time. In fact, after exposure to heat has disintegrated the vehicle, the zinc dust continues to adhere firmly to the original metal, due to the fact that under these elevated temperatures the zinc dust actually forms a galvanized coating . . . . Extensive plant experience with heat-resistant zinc-dust paints used on various hot surfaces, such as the tuyere pipes of blast furnaces and the flue boxes of steam plant stacks, indicate the excellent service which these paints are rendering in actual practice, indoors and out."

"Heat-resistant zinc-dust paints," the bulletin continues, "may be tinted to a number of attractive colors. They are particularly adherent to galvanized iron and sheet zinc and may be applied by brush, dip or spray methods. They also have excellent hiding power and are economical because of their high spreading rate."

In an explanatory footnote, it is stated that zinc dust is actually metallic zinc powder, a gray pigment distilled in furnaces especially designed and operated for its production. Its weight by solid gallon is 58.81-lbs.; 1-lb. bulks 0.01700 gallon; and so fine is its state of subdivision that 98% of standard zinc dust No. 22 will pass through a 325-mesh screen.

Ault & Wiborg Launches Service League Program

The first annual Ault & Wiborg Service League dinner was held recently in Cincinnati, Ohio, at the Hotel Alms, with nearly 200 Ault & Wiborg employes from the middle western offices attending. Later, a second dinner was given at the Hotel Pennsylvania in New York for the eastern personnel.

The purpose of these dinners is to give recognition to employes with service records of five years or longer. Pins are awarded, depending on the length of service, and ranging from a bronze emblem for five years to a gold pin studded with diamonds and rubies for the 40-year group. Since Ault & Wiborg was established in 1878, many of its representatives have long service records. A. C. Ransom, now head of the Ault & Wiborg Co. of Canada, Limited, is the oldest employe in point of service, having been with the company for 51 years.

Toastmaster at the dinners was J. G. Morris, vice-president of A. & W. Joseph R. Esposito, president of the organization, made the emblem awards and gave the featured speech of the evening. A reply for the employes was prepared by Mark W. Frishkorn, also a vice-president.

Ault & Wiborg personnel at Service League Dinner, Hotel Alms, Cincinnati, O., Jan. 31

Gas Fuel for Short-Cycle C

Foreword by the Editor: For baking durable and decorative coatings on metal surfaces, there are several different types of enclosed insulated ovens wherein the air is heated by gas, oil, electricity or steam, and circulated over the work in process.

A more recent development that has come into some prominence is the infra-red-ray lamp system, wherein banks or tunnels of electric lamps and reflectors are used to bake or cure paint coatings. Readers of "Industrial Finishing" are familiar with both of these types of equipment.

Infra-red-ray radiant heating can also be produced by certain types of gas burners—sometimes with and sometimes without glass barriers interposed between the gas flame and the surface coating being cured. The author tells us something about this in the accompanying article.

"Industrial Finishing" has endeavored to present practical facts about these methods of baking coatings without exploiting certain controversial claims and comparisons regarding costs, merits and results. Uusually it is difficult to make exact comparisons in actual factory production. Where there is doubt as to which system to adopt, it is recommended that competent engineers be called in to study all conditions of the work and all facilities and requirements for production. These experienced engineers, from reputable concerns, are in position to submit proposals and estimates based upon knowledge of successful installations elsewhere.

THE facts presented in this article are the result of exhaustive studies initiated and sponsored by the Committee on Industrial Gas Research, of the American Gas Association... It is not sufficient to know that gas fuel possesses certain merits. It is equally important that the characteristics of certain bake finishes be known and that the effects of various methods of heat application be thoroughly understood — in order to prevent inaccurate impressions from being disseminated by those having but a superficial knowledge of the subject, and to guide all in the proper scientific design of equipment for each individual installation. Of course, within the scope of this article, only the condensed highlights of the extended and thorough investigation can be outlined.

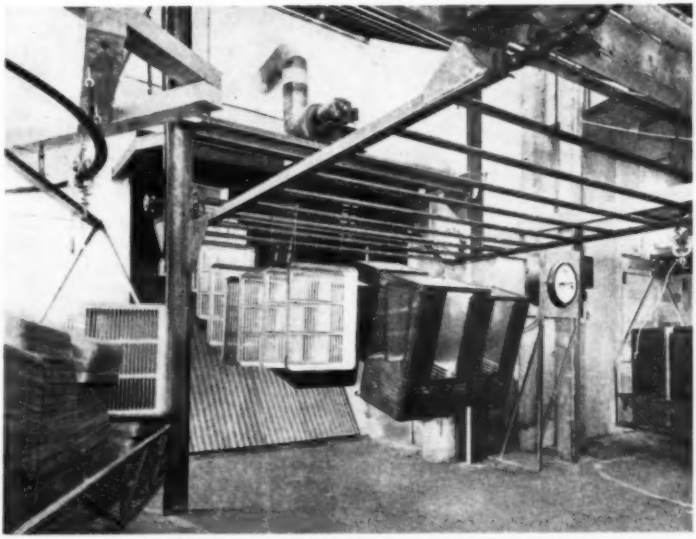
Only Polymerizing Finishes Suited to Short-Cycle Curing

The facts presented in this paper apply only to polymerizing finishes, as oxidizing and volatilizing finishes are not suited to short-cycle curing. By "short-cycle" I refer to curing times of less than 30 minutes.

The one fundamental fact developed in this investigation, and the cardinal point to be kept in mind in all consideration of curing finishes, is that the curing of a finish is directly dependent on heating the work piece; and only in the degree that any curing process accomplishes this, will that process be successful. The paramount importance of this proven fact must not be overlooked, because immediately all problems of curing fin-

CURING OF INDUSTRIAL FINISHES

Excerpts from a paper by Carl P. Mann of the Selas Co., Philadelphia, Penna., presented at the Conference of Industrial Gas Sales, March 13-14, 1941, in Baltimore, Md.



Leading end of typical conveyor oven installation wherein convection heating is used.

ishes are stripped of mystery....

Gas fuel may be applied in the form of convection heating, infra-red-ray radiant heating, or by a combination of both, and the selection of the proper application to be used in any particular instance can be made only when its specific requirements have been analyzed in the light of the known advantages and limitations of each method of applying gas fuel.

As these advantages and limitations will be discussed in relation to the characteristics of the work pieces, we will first examine the forms of these pieces. Are they regular or irregular in shape? Are they large or small? Is the surface polished or rough? Are the pieces thin or are they thick? Are there a variety of colors in the finishes, or are they all one color?

Taking these factors in order, we will examine how each one affects the proper selection of heat application....

Irregularity of shape has no influence on convection heating, but *in radiant heating it is important*

that no part of the work pieces casts a shadow over a finished part. Shadows inhibit the heating of the work piece at that point, consequently they retard the curing process, while unshadowed parts of the work pieces cure normally. It is of equal importance that the rays strike all finished surfaces at approximately the same distance from the radiant source, as the effectiveness of infra-red-rays is very much influenced by the distance between the work piece and the energy source.

If the work pieces under consideration are large and regular in shape, and all pieces are the same, then radiant sources may be located to give uniform curing of the finish; but if the pieces are small, and if many must be grouped in the oven at the same time, it may be impossible to arrange the radiant sources to give uniform curing.

In this connection is is desirable to point out that if radiant sources are located beneath the work in order to minimize the shadow effect, their effectiveness may be decreased due to dripping of the paint. Also, the effectiveness of infra-red-ray lamps, but not radiant gas burners, will be decreased by the vaporization and condensation of solvents on the lamps and reflectors. Convection heating is entirely free of these disadvantages.

Polished and Unpolished Surfaces; Thickness of Parts

Polished or unpolished metal surfaces (under finishes) do not affect curing time with convection heating; but in the case of radiant heating, a polished surface will require approximately 20% more time for curing than an unpolished surface, if radiant gas burners are used, and if infra-red-ray lamps are used the increase in curing time may vary from 9% to 45%, depending on the type and color of finish.

Having in mind the fact that, basically, curing a finish is directly dependent upon increasing the temperature of the work piece, it is obvious that the thicker the piece the longer will be the curing time. Irrespective of the method of curing, the longer the curing time for any shaped piece, the less will be the percentage of increase in curing time due to an increase in the thickness of the piece....

The color of a finish has no effect whatever on the curing time of a piece where convection heating is used, but one of the outstanding characteristics of radiant heating is the fact that, other things being equal, different colors of finishes require different curing times. Black will require the shortest curing time, and white the longest curing time, while other colors require intermediate time periods for curing....

Cost of Baking Installation; Cost of Operation

Up to this point I have confined my discussion to the physical aspects of work pieces and how these affect the selection of the curing method to be used. The importance of these considerations must not be overlooked in solving the problem of curing finishes, but the final selection of any curing method will depend equally on the economic consideration of the problem; namely 1) the cost of the necessary equipment for curing; 2) the rate of production for any given space (or conversely the space required to produce the desired number of pieces at a given rate, and 3) the operating costs of the methods under consideration.

Too often, hasty conclusions are

drawn, based on superficial facts. Frequently decisions must be made rapidly and, in times like the present, under the stress of great pressure, so it is advisable that the most pertinent points of a problem be first selected, and the problem analyzed and clearly presented as viewed from these points.

The actual cost of equipment for any proposed installation must be estimated when the requirements of the design, character of work pieces, and necessary safety precautions are known. Any specific statement making a direct comparison between the costs of the several methods of curing would be misleading, but it may be stated that in general the cost of equipment using radiant heat, either from gas burners or from infra-red-ray lamps, is less than for convection heating.

Design of Bake-Finishing System

In the matter of design, due consideration must be given to the fact that convection heating installations require from 15 to 30 minutes heating-up time before being ready for operation, whereas infra-red-ray lamp installations are ready for operation immediately, and radiant gas-burner installations almost immediately upon starting. Then, due to the rapidity with which convection heating acts on the finish, it is necessary to provide for a one minute preheat period in the design of the oven. This can be advantageously accomplished by the exchange of heat from the cured pieces at the discharge end to the entering pieces at the intake end. This eliminates any additional heat for preheating, prevents accumulation of solvents, and cools the cured work pieces—a desirable feature, as it facilitates handling for inspection and otherwise. Any curing installation should provide for this, but the figures included in this presentation have not included the necessary power for providing the cooling circulation.

It may well be pointed out here that the only way of utilizing exclusively the infra-red rays from a radiant gas burner is to interpose a glass barrier between the work pieces and the burners, as was done in the series of tests on which this presentation is based. This is, of course, undesirable; in most cases it is impractical and furthermore unnecessary, because *by the elimination of the glass barrier we obtain a method of curing which combines both radiant and convection heating*, which leads to a most advantageous curing method. This will receive later consideration.

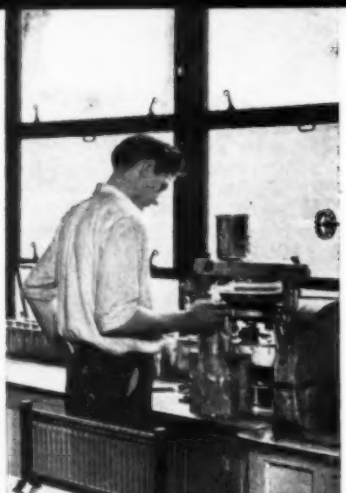
Comparative Figures Are Subject to Variation

Now all of the figures representing comparative costs, baking time, baking temperature, etc., are subject to variation. The temperature of the air in convection heating may be increased, or the wattage of the infra-red-ray lamps may be increased, but as pointed out heretofore, in this zone of temperatures and wattages the percentage gain in production for the same percentage gain in energy input is very much greater for convection heating than for infra-red-ray lamps. However, the cost of production will be affected....

As an additional sidelight on the matter, it is well to point out that the polymerizing types of finishes are not unfavorably affected by the products of gas combustion, consequently convection heating equipment may be direct gas fired.

(Continued on page 77)

Are Cheap T



Modern business competition is a serious matter. It is a healthy sign of increased demand and of a related manufacturing effort to supply that demand. On the other hand, it is a matter of real concern to the individual industries within this cycle of supply and demand, since most producers of essential goods do not enjoy a manufacturing monopoly.

At the present time, our volume of business is increasing, raw material and supply prices are rising, and net profits are increasing while margins become smaller. Competition is sharp and most firms are cutting corners trying to reduce their production costs.

PRODUCTION materials such as varnishes, lacquers and synthetics are already rising in price; therefore, to maintain a normal leval of finishing cost, some saving must be effected. Naturally most manufacturers are reluctant to lower the ultimate quality of their product. The finishes on these products must remain as durable as they were previously, lest customer good will be lost.

You ask: "But how about thinners? Thinners don't remain on our work. We use them to cut our lacquers and varnishes so that we can spray them, after which they evaporate and nobody sees them anyway! Why can't we use as cheap a thinner as we can buy?"

While it is true that thinners evaporate from the work and are not a part of the final film, they do have an effect on the kind of film that is left. They are strangely like the carburetor mixtures in your car. Rich thinners have power and pep, while lean thinners are weak and do not work with the same power and smoothness on the materials with which they are mixed.

Of course, much depends upon the finishing material itself. In the case of lacquers, good lacquers with good solvent combinations can take reduction with cheap thinners without suffering too much in total solvent strength. Cheap lacquers, however, do not contain very much rich solvent to start with, and may require slightly better thinners to work properly. A certain degree of solvent strength is necessary for any material to work properly. Whether this comes with the lac-

ap Thinners Worth While?

BY PAUL WALLACE
Lacquer Chemist

quer or is introduced by means of the thinner is unimportant. However, it does point to the wisdom of obtaining both the paint and the thinner from one manufacturer, since he knows definitely the solvent strength of each, as well as the combined solvent strength of the thinned material.

More Orange Peel Produced

One of the most noticeable effects of cheap thinners on the final dried film is an increase in the amount of orange peel. This is due to the fact that the low solvent strength of a cheap thinner causes the film to reach the "gell point" before it has an opportunity to flow out fully. This "gell point" is the intermediate point between the liquid and dry stages of the film at which this film, while not yet dry, begins to "set".

Orange peel is generally spoken of as though it were a defect in the finish. In metal enamels it is particularly undesirable, since it detracts from the polished appearance of the article. Then again, in that work which is to be rubbed and polished, an excessive amount of orange peel requires more cutting down to a level surface before the piece is polished, thereby raising the cost of this operation and at the same time lowering the rate of production. Flat lacquers, varnishes and enamels also tend to suffer through increased orange peel, since they lose the satin rubbed effect that they normally and so desirably produce.

On the other hand, wherever a minimum number of gloss coats are applied, a large rippling orange peel (as distinguished from a fine crinkled one) will invariably tend to give a glossier, fuller appearance to the finish. This effect is not very easily explained except by the fact that this orange peel, with its glossy high spots, serves to detract attention from other defects such as wood grain and tiny

pits and craters in metals which have not been properly or completely filled.

Pinholing; Trapped Air

Two other surface defects that can be frequently attributed to the poor flow of cheap thinners are what are commonly known as "pinholing" and "trapped air". Since the spray gun atomizes the paint by means of compressed air, it is inevitable that some tiny air bubbles are carried or driven into the wet film on the surface being sprayed. With rich thinners, this trapped air can rise to the surface of the film and escape, but when lean thinners are used, the film may reach the "gell point" before all of these bubbles have come to the surface and have broken. Therefore, these bubbles, which are known as "trapped air", are literally "frozen" into the film.

Those tiny craters that have been formed by bubbles breaking at the surface, and which do not have time to flow out before the film sets, are know as "pinholes". The use of cheap thinners, however, does not mean that "pinholes" and "trapped air" are inevitable.

Effect of Cheap Thinners on Gloss of Film

Generally, these troubles can be eliminated by careful spray operators, being particularly careful not to use too high an air pressure at the gun, and by applying coats that are not excessively heavy. In addition, a lean thinner can help to eliminate occasional sags and runs which may be produced by the best of spray personnel, for the very same reason that cheap thinners do not produce the degree of flow, which is the cause of these sags and runs.

In the case of pigmented enamels, gloss is frequently a necessary and highly desired essential. There are many well known factors in any finishing material that have a direct effect on the ultimate gloss, such as fineness of grind or degree of pigment dispersion, ratio of pigment to clear vehicle, and the quality of the clear vehicle itself. What is not generally known is that the thinners used with such enamels can have a direct bearing on the gloss produced by the combination.

This is obvious if we examine the reasons for this phenomenon. Few vehicles in use today are simple solutions of but one non-volatile ingredient. Lacquers contain nitrocellulose, resins and plasticizers. Urea-formaldehyde finishes contain complex urea-formaldehyde resins, alkyd resins (which in themselves are combined from mixtures), and not too infrequently, plasticizers or plasticizing resins as well. Synthetic enamels may contain a single synthetic resin or they may contain a mixture of two or more synthetic resins, each of which has been prepared, in turn, from a mixture of materials such as the simpler more fundamental resins in conjunction with oils, oil acids and the like.

Varnishes, of course, are also made from complex mixtures very similar in nature to those used in synthetics, but of different types and complexities.

Important Function of Solvents

And to add to the picture of general confusion, there are a number of individualized synthetic materials, some of which may be included in any of the three above-mentioned lacquers, synthetics and varnishes. The most commonly known and talked about are ethyl-cellulose and chlorinated-rubber derivities.

None of the above possible com-

binations, no matter how they are mixed or blended, no matter how they are cooked together or combined, can be said to be truly homogeneous materials. In other words, no amount of cooking or blending or mixing can cause all of these ingredients to lose all of their separate identities; consequently it is often a function of the thinners and solvents to bring these materials down from the liquid to the homogeneous solid state by process of evaporation. It is the function of the solvents to see that these ingredients are laid down to a dried film in such a manner that each loses its individual characteristics in the final film that results. If this blending by solvents is not entirely complete, even though the vehicle may not show any haze or obvious dissociation to the naked eye, the result may be a loss in gloss or degree of depth when used as a base for a pigmented enamel. Many solvents now available are known to have excellent blending properties and they are used extensively in better grade thinners, but unfortunately they are relatively high-priced materials and cannot be used in low-cost thinners.

All this does not mean that low-cost thinners cannot have good blending and gloss producing qualities, for by carefully balancing the various individual solvents in these mixed thinners, sufficient solvent action for each non-volatile ingredient can be assured. Therefore, if you can get the manufacturer to state that his low-priced thinner will work well with *his* lacquer or synthetic, you can be certain of getting a thinner that will be entirely satisfactory, because that thinner will have been properly balanced for the material with which it will be used. Do not make the mistake of buying any cheap thinner on the market for use with your present material, unless you have actually tested it under both laboratory and factory conditions and have proven conclusively that it will do the job.

Effect on Blushing

Much of what has been stated before, regarding the manner in which dried films are produced from the liquid material, can be applied equally well to the phenomenon of blushing. Water blushing is not produced by any ingredient present in the paint (in this case lacquers are mostly affected), but rather by the atmospheric moisture which condenses on the lacquer particles as they are being sprayed and also on the freshly sprayed lacquer while it is still wet. It is safe to say that moisture will condense on any freshly painted surface while it is still wet, because evaporation of the thinner or reducer cools the surface of the film. Water then collects on this surface in much the same manner that a frost or dew will appear on the outside of a glass containing a cold beverage. The amount of this condensate will vary according to three factors, and will be greater when 1) the atmosphere contains a high percentage of humidity, 2) when the speed of drying is increased, and 3) when room temperatures are higher.

Naturally there are extreme conditions where even the best of lacquers will blush, thereby requiring the use of a retarder to eliminate this trouble. Thinners are the most important factors in any lacquer when the question of blush resistance arises. As we have seen before, moisture will inevitably condense on the surface. The question of blush resistance therefore depends on whether the lacquer-plus-

thinner mixture can throw off this water before the film blushes.

Alcohol Content Attracts Moisture

Cheap thinners frequently contain relatively large amounts of alcohol, which is one of the cheapest of lacquer thinner ingredients. This alcohol is miscible with water and as soon as moisture condenses it is taken up by the alcohol and therefore cannot as easily be thrown off before it precipitates (by its non-solvent action) some dissolved ingredient of the lacquer —usually nitrocellulose.

On the other hand, a good thinner either will not take up this excess amount of water or, if it does, there is sufficient reserve solvent power to keep the nitrocellulose in solution, with the result that blushing is rarely encountered. It must be remembered that good thinners are not necessarily expensive thinners, but cheap thinners must be proven to be good before they are used. Poor quality thinners can be used with retarders during spells of "blushing weather", but most retarders will slow the drying time more than a good thinner which, in itself, is blush resistant. Furthermore, retarders are expensive and are troublesome to use. It is far more economical to use a good thinner, even at a few cents more in cost, than to experience delay in drying time, spend time in adjusting the lacquer with retarder, and pay for the time and labor involved in mist coating that work which had been sprayed before the retarder was added.

The Effect of Thinner Odor

Expensive thinners and reducers are by no means odorless. Just ask anyone who is not used to working with paint or paint materials in production quantities. However, there are certain types of thinner ingredients which can be objectionable to even the most hardened spray foreman, and such objectionable ingredients are commonly, but not necessarily, found in the cheaper lines. This is not unusual because some of the cheaper thinner and reducer ingredients owe their low price to their relatively large percentage of impurities. These impurities either do not exist in, or are refined out, of the better grades of materials.

Also, low-priced ingredients are frequently produced as by-products of other industries and carry residual odors of those industries or processes. These un-floral like odors do not in any way impair the working value of a thinner, but they may be disadvantageous in operations conducted in city areas. Also, they can be detrimental with respect to the well being, happiness and productivity of spray and finishing personnel. In addition, there is the factor of residual odor which should be carefully considered. Those goods which reach the ultimate consumer in a relatively short time after finishing, or those which are so thoroughly wrapped and packed that any residual odor cannot escape easily, may well be unpopular with the consumer trade.

The Material Cost Picture

The best reason for using cheap thinners is obvious. All of the foregoing has been merely an attempt to point out the possible disadvantages of such materials, but the major reason for considering them is the matter of cost. Simple arithmetic tells us that one gallon of paint material at $2.00 a gallon, when reduced equal parts for spray with a thinner at 90c a gallon, will yield a material at the gun costing

$1.45 per gallon. ($2.00 plus $.90, divided by 2). Similarly, the same paint, when reduced equal parts with a cheaper thinner at 60c a gallon, will be applied at a cost of $1.30 per gallon.

This saving in production cost of 15c per gallon of finishing material as applied is naturally an important and satisfying factor—if the ultimate finish and all other results are entirely satisfactory.

Commercial Solvents Licensing "Hot Lacquer" Process

The Commercial Solvents Corp., Terre Haute, Ind., announces that it is now granting licenses to lacquer manufacturers and their customers under U. S. Patent No. 2,150,096, which covers the application of lacquers at elevated temperatures. This patent discloses a novel lacquer technique based on the fact that it is possible to apply at elevated temperatures (150 to 160° F., for example) a lacquer containing much larger proportions of solids than has ever before been possible. Because of its convenience and the marked saving in application costs which it effects, the "hot lacquer" process has been adopted by many furniture manufacturers, as well as by manufacturers of a wide variety of other products including metal articles and porous materials such as wallboard.

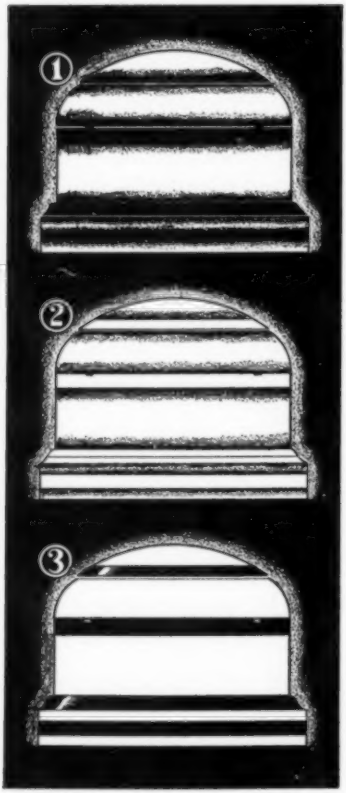
The "hot lacquer" process allows an increase in the solids content of 50% to 60% at spray viscosity. Also, these "hot lacquers" can be applied in thicker liquid coats than conventional lacquers, with the result that the number of coats required to give any desired thickness of film may be reduced by as much as one-half. Furthermore, very attractive one-coat lacquer finishes can be obtained with this new system.

When properly formulated and applied, the flow characteristics of "hot lacquers" are excellent and blushing troubles are greatly reduced. All of these advantages are obtained without sacrificing to the slightest extent, the rapid-drying and other valuable characteristics of nitrocellulose lacquers.

Inquiries concerning the "hot lacquer" process should be addressed to your lacquer manufacturer, as specially formulated lacquers and special heating equipment are required when using this process.

A graphic illustration of the way in which an automobile body is masked prior to paint spraying was depicted in the exhibit of the Industrial Tape Corp., at the Southwest Automotive Show held recently. A life-size, flood-lit diorama showed how a car to be finished in two tones is blocked off so that only the area to be sprayed is uncovered.

Spraying, Masking Color Bands on Metal Caskets



1) Black band sprayed over grey primer.
2) Tape applied to mask bands from silver.
3) Tape removed after spraying silver coat.

BY AL MATLOCK

WHEN preparing to paint and decorate metal caskets the metal case must first be cleaned carefully; and then sprayed with grey primer-surfacer. Cleaning is doubly important on work of this kind, or the finisher may be embarrassed by having a piece of the undercoat peel off with his masking tape.

After the primer is sanded down smooth, the striping color can be applied. Be sure to spray a band wide enough to allow a full 1-in. stripe. The usual combination is black stripes on a silver background.

I found that a regular gloss black lacquer enamel is unsuitable because later it shows through the silver coat slightly. I fiddled around, as a finisher is likely to do when stumped temporarily, and then tried some drop black cut with lacquer thinner, with a little mixing lacquer added to give it the right consistency. This mixture worked nicely in every respect.

When the black color band has dried for 15 to 20 minutes, the tape may be applied. A strip of tape is run around the edge of the caps of the casket, one is put around the top of the shell, two strips are used to cover the moulded top of the base, and one is placed halfway

WHITE MAGIC

• One coat of Glidden's "115" Synthetic Enamel converts a metal surface into lustrous porcelain white in seven minutes with infra-red baking. Or it may be used with any customary oven equipment at normal time and temperature schedules.

"115" is perfect for products requiring both service and beauty of surface—kitchen, medicine and utility cabinets—containers for vegetables, spices, cereals, coffee and tea—wire baskets and cages—furniture, fixtures and appliances. It's tough and elastic and resists marring, chipping or fracturing. Available in any shades, including all U. S. Government Standardizations of Kitchen and Bathroom Colors.

For a luxurious finish that can take abnormal punishment, ask the Glidden man for samples of "115" Synthetic Enamel. Or we'll gladly give you a demonstration in your own plant whenever you request.

THE GLIDDEN COMPANY • National Headquarters, Cleveland, Ohio

Branches or Factories in Principal Cities

TIME-TESTED
GLIDDEN PRODUCTS CARRY THIS FAMOUS MARK OF QUALITY

GLIDDEN
Everywhere — for Everything

down the base. The whole job will require 25 or 30 yards of tape.

In order to get a straight line on the sides of the shell, which are more than 6-ft. in length, the tape should be unrolled, stretched straight and tight, and then brought up against the side at the proper point where it will stick. After all of the tape is on the shell, run over the edges with the finger tips to stick down the loose places and prevent underspray of silver coat. Once a workman acquires the knack of handling masking tape, the whole job becomes a matter of a few minutes.

Now the silver can be sprayed. When spraying over the tapes the operator must hold the gun so that the spray will be directly at the tape, not from one side, or a thick edge will be built up along the tape edge and this will make more work for the polisher.

After the silver has dried a few minutes the tape may be pulled off at right angles. This will leave a black stripe with clean-cut edges, providing the taping job has been properly done. Now the top-coat lacquer is applied — a wet coat, twice around, and let dry till the next day before polishing.

The finished appearance is difficult to describe—jet black stripes contrasted against a pure white silver background; all underneath a clear lacquer coating that is polished to a glass-like smoothness.

Just as attractive is a light gunmetal finish with silver stripes, or bronze with coppertone stripes.

The finisher must watch his tapes in regard to temperature, but not so much now as in former years. If the tape is too cold it is hard to unroll without tearing, especially flat-back tape such as is used for this work. If it gets too warm it will leave marks that must be removed with naphtha before re-coating. With the improved tapes now on the market little trouble will be encountered, however.

Non-Skid Floor Wax

The United States Testing Co., Inc., Hoboken, N. J., announces the release of Testing League Bulletin C-26, dealing with certified floor wax and giving the details of a study of floor waxes in general when applied to different types of floor surfaces—such, for example, as linoleum, marble, terrazza, tile, wood, etc. This bulletin covers not only the theory behind a non-skid product in the floor wax field, but it details the procedure by which their tests were run to uncover such interesting facts as relative water resistance as well as coefficient of friction.

Copies of this bulletin are available from the United States Testing Co., Inc., 1415 Park Ave., Hoboken, N. J.

Triple doors add interest and provide extra utility on this light mahogany buffet—part of a smart, contemporary styled dining room ensemble which will be among the new merchandise featured at the spring national home furnishings show opening at the American Furniture Mart, May 5. The unusual hardware is satin finished brass.

THEY BUY WITH THE EYE

and the EYE is automatically drawn to articles finished in beautiful

multiform

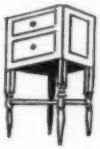
Non-metallic . . no possibility of material shortage in middle of production season

MULTI—*many*—many colors, many forms, many beautiful effects upon many kinds of materials—wood, metal, fibre, paper, composition boards—two and three color effects at single-color cost—and without striping, stencils, decalcomanias or spraying edges.

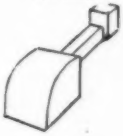
MULTIFORM looks, feels and cleans like porcelain, goes on quickly, hides surface imperfections, won't chip, patches without stripping, resists heat.

MULTIFORM spotlights your product on the salesroom floor—catches the eye—sells through the eye. Have you our book?

ON WOOD



ON METAL



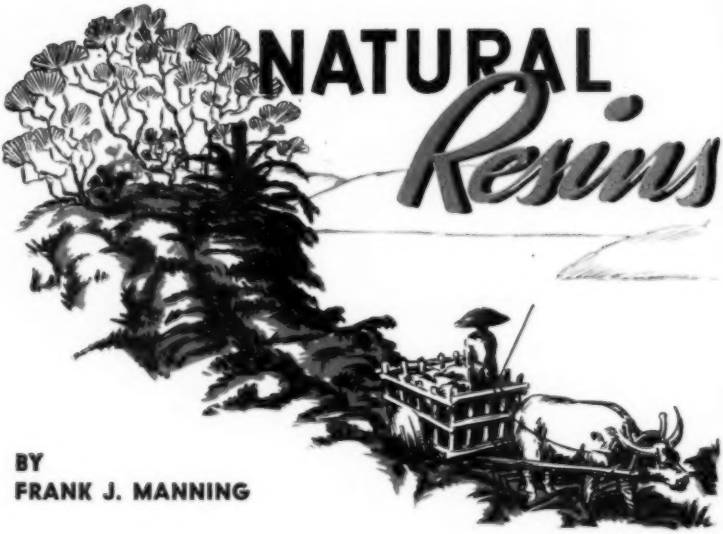
ON COMPOSITION

BERRY BROTHERS

Industrial Varnishes • Enamels • Lacquers

DETROIT, MICHIGAN WALKERVILLE, ONTARIO

NATURAL Resins



BY
FRANK J. MANNING

NATURAL resins have been long known to man. The early Chinese, Japanese, Egyptians, Greeks and Romans knew of them and their properties, as evidenced by the many ancient objects coated with resinous materials which have been found in an excellent state of preservation. The manufacture of modern finishing materials originally depended almost entirely on these natural resins for base materials, and even today tremendous quantities are used despite the development of synthetic-resin bases.

Trees of a number of genera and species are the source of natural resins. They grow in many parts of the world, principally in Africa, New Zealand, Malay, the Philippine Islands and the East Indies. The various resins are exudations from these trees and may be either fresh from living trees or fossilized from trees of many years ago. Fresh resins may be natural secretions or they may come from systematic tapping or accidental scarring of the trees. Fossilized resins are those which have aged considerable periods of time, originating from trees which have long since died and, perhaps, disappeared through decay, etc.

The color of natural resins varies from transparent water white to very dark opaque. Their melting points range from 195° to 425° F. They may be spirit-soluble, oil-soluble or both. Generally, the resins in the softer ranges are soluble in a number of organic solvents and will dissolve by simple heating in vegetable oils. The harder resins

In this article I have been careful to confine the discussion to facts that are technically true and which will be of interest to those who use finishing materials. It is designed to acquaint users with some of the chief properties and characteristics of organic coating compounds, etc.—The Author.

usually require a preliminary heat treatment called running to make them soluble. In other words, as in the case of hardness, there is a continuous series of solubilities, with the soft resins being most soluble and hard resins least soluble.

A wide range of physical characteristics are obtainable in the natural resins, depending on the type and age after exudation. With regard to hardness, they range from the almost fluid balsam type to the very hard fossilized varieties. Between these extremes there are soft, recently exuded resins; half-hard resins which are new but have been allowed to age for a short time; and finally, the hard resins which have aged so as to become quite hard or semi-fossilized.

Following is a list of resins arranged in the general order of their increasing hardness. There is some overlapping, of course, but the general order holds fairly well.

1. Elemi
2. Accroides
3. Sandarac
4. Mastic
5. Batavia Damar
6. Singapore Damar
7. Manilas
8. Batu
9. Black East India
10. Pale East India
11. Loba
12. Pontianak
13. Boea
14. Kauri
15. Congo

Classification

Resins of natural origin are classified in a number of ways. Classifications are based on the trees from which the resins come, the parts of the world from which they are collected, the ports at which they enter commerce, etc. Minor classifications arise from differences in color, size, hardness, shape and other physical characteristics. A general classification might be as follows:

Dammars

1) Soft spirit and oil-soluble resins, melting point 195° to 230° F.

A) Batavia Dammar.
Origin: Sumatra, Borneo, Java, East Indies.
Tree: Hopea, Shorea.
Solubility: S. e, ph, cts; PS. k; INS. a.*

B) Singapore Dammar.
Origin: Malay States and adjacent islands.
Tree: Dipterocarpaceae.
Solubility: Similar to Batavia, but more cloudy solutions.

Dammars

2) Soft semi-fossil or fossil resins, oil-soluble, melting point 255° to 365° F. (East India.)

A) Batu.
Origin: Malay, East Indies.
Tree: Shorea.
Solubility: S. e, ph, cts; INS. a.

B) Black East India.
Origin: Malay, East Indies.
Tree: Burseraceae.
Solubility: S. e, ph, cts; PS. k; INS. a.

C) Pale East India Macassar.
Origin: Celebes, East Indies.
Tree: Dipterocarpaceae.
Solubility: SC. ph, cts; SS. a, e; INS. k.

D) Pale East Indies Singapore (Rasak).
Origin: Sumatra, Borneo, Malay, East Indies.
Tree: Balanocarpus.
Solubility: S. ph, cts; SS. a. e; INS. k.

Copal—Manila

1) Soft to half-hard spirit-soluble resins, melting point 230° to 275° F. (Melengket and Loba.)
Origin: Netherlands East Indies, Philippine Islands.
Tree: Agathis Alba.
Solubility: S. e, k; S to SC. a; INS. ph, cts.
2) Hard spirit and oil-soluble resins, melting point 285° to 330° F. (Pontianak).
Origin: Borneo.
Tree: Agathis Alba.
Solubility: LS, a; PS. k; INS. e, ph, cts.
3) Hard-fossil spirit and oil-soluble resins, melting point 285° to 330° F. (Boea).
Origin: Netherlands, East Indies.
Tree: Agathis Alba.
Solubility: PSC. a; INS. e, ph. k.

Copal—Congo

1) Semi-fossil or fossil oil-soluble African resins, melting point 285° to 430° F.
Origin: Belgian Congo, Africa.
Tree: Copaifera.
Solubility: INS. a, e, ph, cts, k.

Copal—Kauri

1) Semi-fossil or fossil New Zealand spirit and oil soluble resins, melting point 250° to 320° F.
Origin: New Zealand.
Tree: Agathis Australis.
Solubility: PS. e, k; SS. a; INS. ph, cts.

Miscellaneous

1) **Elemi:** Very soft spirit-soluble resin; melting point 250° F.
Origin: Philippine Islands.
Tree: Canarium Communis.
Solubility: S. a, e, ph, cts, k.
2) **Sandarac:** Soft spirit-soluble resin, melting point 275° to 295° F.
Origin: N. and S. Africa, Australia.
Tree: Coniferae.

Solubility: S. a, k; PS. cts; INS. e, ph.
3) **Mastic:** Semi-hard spirit-soluble resin, melting point 217° to 226° F.
Origin: Chios Island, India, North Africa.
Tree: Pistacia Lentiscus.
Solubility: S. a, e, ph, k; PS. cts.
4) **Red Gum** (Gum Accroides): Balsan type spirit-soluble resin, melting point 207° to 230° F.
Origin: Australia, Tasmania.
Tree: Xanthorrhea.
Solubility: S. a.

***Solubility Key.**

S—Soluble
LS—Largely soluble
SC—Soluble, cloudy
PS—Partly Soluble
PSC—Partly soluble, cloudy
SS—Slightly soluble
INS—Insoluble
a—Alcohol
e—Esters
ph—Petroleum hydrocarbons
cts—Coal-tar solvents
k—Ketones

The natural resins are used most widely in the manufacture of protective and decorative organic coatings. Paints, varnishes, lacquers, enamels, japans and stains employ them as vehicle bases, flatting agents, plasticisers, etc. They are also used in printing inks, pastes, adhesives, cements, plastics, linoleum and oil cloth, polishes, textile coatings, chewing gum, explosives, medical ointments, amber substitutes, match heads, fumigants, rubber and wax compositions, waterproofing and fireproofing compossitions.

Uniformity and Supply

It must not be thought that natural resins, being of natural rather than synthetic origin, are undependable either as to quality or supply. True, in the early days of the natural resin business, collection, preparation and grading often left much to be desired. The mod-

Spray it hot
AND YOU SPRAY MORE SOLIDS

RESULT? 2 Coats Perform as 3

Unbelievable? Let's see! P & S Hot Spray Lacquers are *permanently* heavy in solid content. Why? Because *heat alone* does the "thinning"—and so *all* the heavy solids in the *original* lacquer actually "arrive" on the work.

The result? *Two* coats replace *three!* Think of the savings in material cost (20% to 25%), application time, labor and handling costs! And what's more, P & S Hot Spray reveals a new standard in product appearance and durability. Let us send you full factual details.

P&S 1884

PIERCE & STEVENS
Incorporated
716 Ohio St., Buffalo, N. Y.

HOT SPRAY LACQUER

ern resin business, however, is carried on in a strictly scientific manner, in many cases under government supervision and control, with the result that the consumer is assured of adequate supplies meeting close specifications.

Cub Salesman's Blunder Teaches Me A Lesson

YES! I resigned a $10,000 a year position to sell paint. No; don't get me wrong! I am not sorry! The passing years have been pleasant. I have made a number of real friends and I hope that I have rendered a real service to them, as well as to many others.

I was so "green" in paint lore, however, that my first contact was a tile manufacturer who had row upon row of brightly "varnish tile" stacked high about his plant. That is, I thought the tile were varnished. I've never forgotten the look of unsurpassed surprise on the manager's face when, after introducing myself and my new connection, I asked: "And now Mr. Zigelman, will you let us work with you on the varnish used for coating your tile? We produce what is doubtless the finest tile varnish obtainable."

"You do? Well-l-l, you see we do not use varnish—but then perhaps? Well—you see we obtain our gloss through the vitreous process, the same as our competitors. Say smart guy, what are you trying to do? Kid me?"

That first call ruined my equilibrium! There followed two of the darkest gloomiest weeks of my life. The depression was one big holiday compared to the gloomy, depressing thoughts which continuously intrigued my mind. You get it—suicide!

This first unforgivable blunder (there have been others) taught me a lesson—one that I have never forgotten, namely: Be cautious and be blessed; be cock-sure and be cussed. Cock-sureness is a dangerous pathway, very dangerous indeed.

Incidentally, that first call was the longest I've ever made; one minute to make it and two weeks to recover sufficient poise and courage to make another.

The moral? Simple! Know what you're talking about, or find out before you talk! I wonder if most of our failures don't come through thinking too little, or thinking we are so damned good we just don't have to think at all?

Preparedness is a swell idea. It puts you on a level with the one who is, and it boosts your chances of successful selling, be it pins or paint. By the way, if it's paint, just remember friend John (your nearest competitor) makes good paint too and probably knows how to sell it. Better know yours better, or be c a u t i o u s. — "SMILING JIM."

O. A. Yokes, Color Designer, Joins Staff of Schaefer Varnish Co.

The Schaefer Varnish Co., Inc., 15th & Magnolia, Louisville, Ky., announces the addition to its staff of Mr. Oscar A. Yokes as color designer. Mr. Yokes was formerly associated with some of the better Grand Rapids furniture factories and later worked with some of the higher-class furniture designers, as well as finishing material manufacturers.

Mr. T. F. McGuire, president of the company, declares that with the assistance of Mr. Yokes in the development and control of stains, glazes, fillers, etc., the company will be able to offer the trade many new and beautiful color effects. Many furniture manufacturers know Mr. Yokes, who has had unusual success in going into the factory and cooperating in getting out attractive color designs on the samples—samples which have met with great favor at the markets.

Pittsburgh Industrial Finishes *are*

CUSTOM-MADE *to*

Meet Your Exact Requirements

TO EXECUTIVES

A valuable book containing Pittsburgh's complete facilities, called "Industrial Styling With Color" will be mailed free on request. Please use your company letterhead when writing as this book is not intended for general distribution.

● No matter what your finishing problem may be, a special Pittsburgh formulation can be "custom-made" to solve it satisfactorily. Allow Pittsburgh's technical men to analyze your specific requirements . . . to work with you right in your plant under the same conditions and under the guidance of your own men. Then, when these technical men recommend a finish, you will know that it is a practical product, custom-built to meet the actual conditions of application and service that you demand.

Make This 5-Day Test

You will find it profitable to arrange a 5-day test run of Pittsburgh Industrial Finishes. Keep a constant check on unit costs, speed of production and final results. If your experience is like most, these finishes will generally save you money, speed production and add to the beauty and salability of your product.

May we have our representative call on you for consultation sometime in the near future?

PITTSBURGH PLATE GLASS COMPANY
Industrial Paint Division, Pittsburgh, Pa.
Thresher Varnish Company Division
Dayton, Ohio

Copr. 1941 Pittsburgh Plate Glass Co.

PITTSBURGH *Industrial* **FINISHES**

PITTSBURGH STANDS FOR QUALITY PAINT AND GLASS

WHAT IS *YOUR* FINISHING PROBLEM?

IS FINISHING a bottleneck in your plant? Are your finishing costs too high? Are your finishes as perfect as you would like them? Have you a new product that requires finishing?

Whatever your finishing problems may be, you can be sure that Binks engineers will be able to solve them efficiently and economically. Binks engineers have designed finishing systems for hundreds of large manufacturers in all parts of the world. Binks spray guns, air supply systems, dynaprecipator booths, automatic finishing machines, paint circulating systems and other devices are saving time and money in the finishing of thousands of products ranging from golf balls to battleships.

Why not tell us about your finishing problems today? Binks engineers will be glad to make a careful survey of your plant and submit plans and estimates for an efficient finishing system.

To Be Sure of the Best in Spray Painting and Finishing Equipment, Remember to Ask for BINKS

SEND TODAY FOR THE NEW BINKS CATALOG-DATA BOOK

BINKS MANUFACTURING COMPANY

3114 CARROLL AVENUE CHICAGO, ILLINOIS

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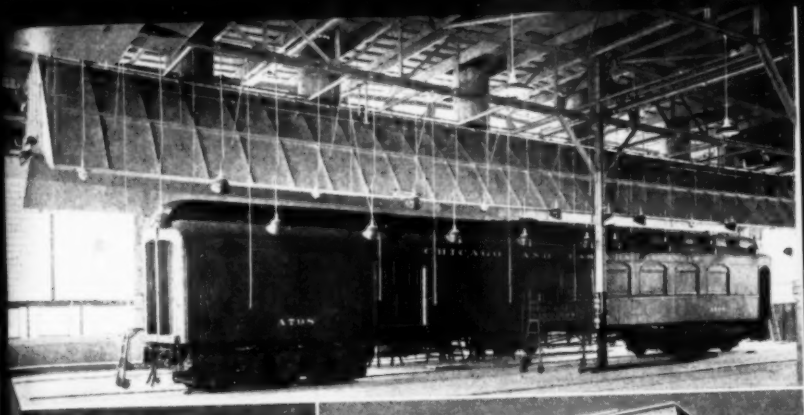
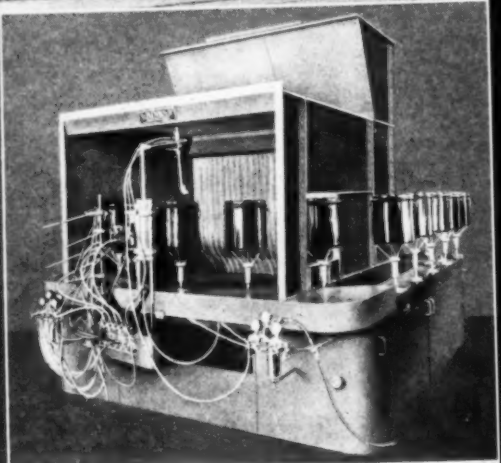
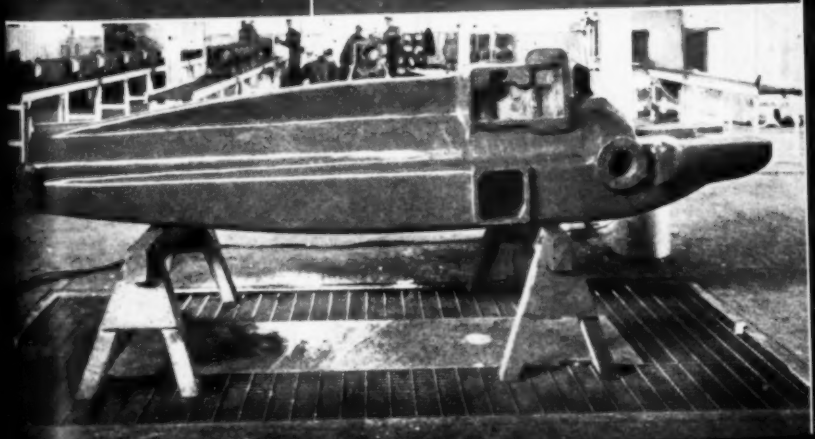


Above—Binks canopy-type spray booth used for finishing railway cars of all kinds.

Right—Binks automatic spindle machine for finishing many-sided or cylindrical objects.

Below—Binks down-draft spray booth. Grit, dust and fumes from grinding, sanding and painting castings are drawn down through a water wash spray booth beneath the grill in the floor.





Special Finishes for Plastics

Special finishes for plastics simplify many production problems for manufacturers compelled to turn to plastics because of metal shortage due to national defense priorities, states G. Klinkenstein, Vice-President of Maas & Waldstein Co., makers of industrial finishes, Newark, N. J.

The use of these finishes enables manufacturers to make all their products out of low-cost black or brown molded phenolic plastics and then finish them in any desired color and style, thus permitting standardized production without restricting the choice of finish.

To meet this newly created demand, Maas & Waldstein are supplying special finishes for plastics in all colors of both smooth and wrinkle enamels, in metallic lustres, and in hammered-metal effects.

All of these finishes can be air dried or baked by either convection or radiant-heat ovens, according to the manufacturer.

Cleans Parts by Spraying

An improved spray unit for applying kerosene or other cleaning fluids, with compressed air is announced by Davis & Murphy (Exclusive Distributors) 500 N. Dearborn St., Chicago, Ill. It is useful for removing grease, oil and dirt from all mechanical apparatus; has no springs, no levers and no buttons to press or pet cocks to open. You simply attach it to the air supply line, exert light pressure to the hose near the nozzle end and the flow of both air and cleaning fluid is automatic. Release the pressure and the flow stops immediately. There is no waste of either compressed air or cleaning fluid. It is designed for use in automotive, machinery, railroad, aviation, truck, bus and other industries. The Model GW is a dual-purpose unit. When blasts of compressed air are desired you simply remove the fluid tubes and operate the GW as a blow gun air valve.

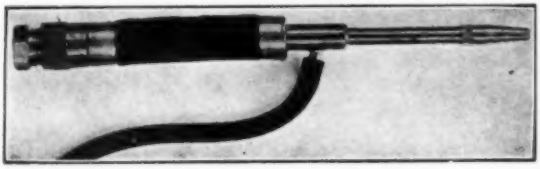
New . . .

MATERIALS SUPPLIES EQUIPMENT

New Detergent Developed

An entirely new type of synthetic detergent, which is a non-electrolyte, and therefore compatible with most types of materials, has been developed for metal cleaning work by Rohm & Haas Co., 222 W. Washington Square, Philadelphia, Penna. Known as "Triton NE," the new material is a high molecular weight complex organic alcohol. It is non-ionic and readily soluble, even in strong salt solutions. It is manufactured as a viscous, transparent, pale amber liquid.

According to Rohm & Haas chemists, Triton NE was developed as a completely non-ionic ash-free material to obtain greater cleansing action in alkaline or acid solutions or in hard water where ordinary surface active



A "blow gun" that can be used to direct a pressure stream of cleaning fluid or just air alone.

ADHESIVE TAPES *and the* FURNITURE INDUSTRY

Ewing Galloway, N. Y.

Furniture finishing has assumed the proportions of a fine art. To keep the standard high and production costs low is always a problem.

The Industrial Tape Corporation line of pressure sensitive paper, cloth and cellophane adhesive tapes has played an important, economical part in this industry. It is the efficient way to protect surfaces and edges, to prevent chipping and scratching, for masking, striping and blocking out areas, to hold movable parts in place and for protection in transportation.

Samples on request

Our laboratory welcomes your special tape problem and will help solve it, without obligation.

●

INDUSTRIAL TAPE CORPORATION

NEW BRUNSWICK, N. J.

"Damn the Torpedoes-

THOSE were the famous words of Farragut at the battle of Mobile Bay. And today, with the orders "full speed ahead" again ringing across the country, all barriers must be conquered — for from every quarter the demand is for greater speed and greater output.

But what is the good of a three-shift working schedule if make-shift finishing equipment is used? Production capacity must not be regulated by slow or inadequate finishing equipment. And it needn't be. For DeVilbiss can equip any manufacturing plant to finish its products faster than they can be built.

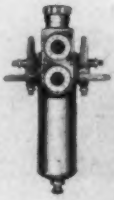
The DeVilbiss line of high-speed finishing equipment is most modern and complete . . . includes everything

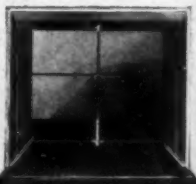
FULL SPEED AHEAD!"

from the air compressor to the weather cap on the exhaust stack. All parts are designed to work perfectly with each other as a complete system on your job. And through each step in the finishing process, from spraying to exhausting, DeVilbiss Equipment picks up speed that makes a big difference in your finishing capacity.

Let a DeVilbiss Spray Engineer show you how you can put your finishing equipment on a par with the rest of your production system.

THE DeVILBISS COMPANY • TOLEDO, OHIO
CANADIAN PLANT: WINDSOR, ONTARIO





DeVILBISS SPRAY SYSTEMS

agents are inactivated. The new material does not settle out, has the same specific gravity as water, is readily soluble in water.

Its complete compatibility with acids, salts, and bases makes Triton NE useful in the metal-cleaning field.

Imperial No-Wash Paint Remover

The Wilson-Imperial Co., 115 Chestnut, Newark, N. J., makers of Lingerwet, Wonder-Paste and Saf-Te removers, has introduced a new product—Imperial No-Wash Remover.

The result of many months spent in experiment and research, this new remover has demonstrated extraordinary solvent power, permitting the removal of many coats with one scraping. Since it leaves no waxy residue, there is no need for after-washing or neutralizing. A quick clean-up with rags or steel-wool is all that is necessary. This advantage results in a saving of 25% to 35% on the time of removing. It also speeds up refinishing time, because the new finish can be applied immediately after removal of the old coating.

Removing enamel with new No-Wash Remover. Note clean condition of the surface and the solid consistency of the finish being removed.

Imperial No-Wash Remover stays wet, permitting application over a large area before starting to strip. It works equally well on any finish, and is suited to both exterior and interior work; has been proved harmless to wood or metal; contains no acid or alkali; does not raise the grain or darken wood; will not injure the most delicate veneer, and has no after-effect on glue.

Rubber Finishes

To provide "eye-appeal" at small cost, many manufacturers of rubber articles use water-wax emulsions. Such emulsions are economical to use because their covering power is extensive and effective.

Recently the laboratories of S. C. Johnson & Son., Inc., Racine, Wisc., developed, then "field tested", three water-wax emulsions specially designed for rubber articles and rubber surfaces. Finishes RF-736, RF-737 and RF-1362 are designed to "dress up" rubber and imitation rubber surfaces, but not to coat them with an artificial high gloss. The "just right" luster they provide is in part the result of a special method of regulating the colloidal particle size of the emulsion in the manufacture of the products. These coatings repel water readily. Extensive use by a leading auto maker has shown for example, that they are highly resistant to rain and moisture over a considerable period of time.

The protective coating which RF-736 or RF-737 forms on rubber surfaces is long-lasting. On ordinary molded rubber surfaces they tend to penetrate the pores, and become almost a part of the product as they dry.

On softer rubber surfaces (rubber articles made from Latex), RF-1362 is particularly effective. It saturates the surface and prevents tackiness without providing a continuous film. For very soft surfaces RF-1362 is usually diluted with considerable water.

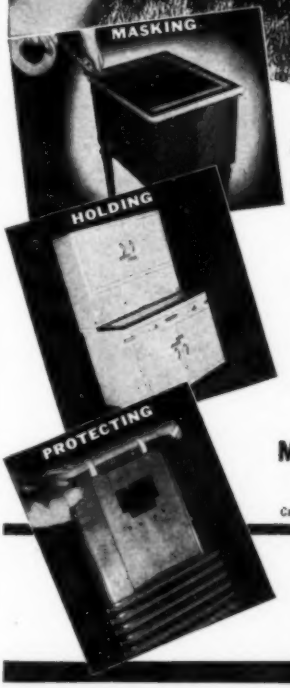
The high covering power of these new water-wax emulsions makes them economical to use. They cover approximately 2,000-sq.ft. per gallon. This figure may increase in some cases, depending on the type of surface on which each is applied.

Laboratory and commercial tests show these new products to be resilient to a high degree. Under ordinary circumstances where there is no excessive bending of rubber surfaces, they resist cracking and scaling very well.

These new rubber finishes may be

SCOTCH *Masking* TAPE

PRESSURE SENSITIVE—NO MOISTENING REQUIRED



for MASKING . . . HOLDING . . . PROTECTING

Scotch Masking Tape insures clean, sharp color separation on paint jobs. When preparing shipments, tape is effectively and economically used for holding doors and drawers closed and for further protection of merchandise by keeping packing materials securely in place.

Scotch Masking Tape is pressure sensitive and easy to apply—no moistening required. When the tape is removed the job is finished. Clean-up expense is eliminated.

Mail coupon today for your FREE sample roll.

Made and Patented in U. S. A. by

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Gentlemen: Please send sample roll to be used for

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Address _____

City and State _____

HE SHUT THE DOOR...

E. I. DU PONT DE NEMOURS & COMPANY (INC.), FIN

...and stopped the frosting!

SOMETHING was playing havoc with the finish. The stumped superintendent thought the trouble was in the finishing process. He reached for the phone . . .

The Du Pont man came over, diagnosed the difficulty. "Shut that door downstairs!" he suggested. The amazed superintendent blinked, exclaimed, "Well, I'll be . . .! Is *that* the trouble?" "Yes," answered the Du Pont man. "When the exhaust fans for the cleaning tanks downstairs are shut off, the spray booth fans draw the fumes up here into the finishing room and cause that frosting."

"Simple," you say. Right. But it was the Du Pont man who knew what to look for. This case is typical of the reason why our customers place complete confidence in Du Pont's understanding of finishes. Our field men have years of experience behind them, solving all types of simple and complex finishing problems.

That's why most of our customers look at Du Pont as their own paint department. They have found from experience that consultation with Du Pont on finishing problems is invaluable. They know that Du Pont research chemists, laboratory technicians, production men, service engineers and field representatives are skilled specialists who combine "know-how" with the finest equipment known to science for the development, manufacture and application of finishes.

They are glad they have turned to Du Pont. They know, too, that as problems arise in the future, Du Pont will be ready and able to supply the right answers.

"New Frontiers Through Chemistry"

. . . yours for the asking!

▶ This interesting new book, prepared by Du Pont, describes many of chemical science's discoveries; the research, the testing, the inside story of many of chemistry's sensational triumphs.

For your FREE copy, just write to: E. I. du Pont de Nemours & Co. (Inc.), 7154A, Du Pont Bldg., Wilmington, Del.

NC.), FINISHES DIVISION, WILMINGTON, DEL. DU PONT

NEW COLORS *for Spring with* YARNALL SYNTHETIC ENAMELS

The Yarnall Research Laboratories and Art Department, working in close cooperation with industrial engineers and technicians, have developed new, beautiful, two-toned color effects to increase sales through eye-appeal for many industrial products.

Take a tip from the automobile industry and streamline your products with color!

Yarnall finishes have been especially developed to improve application, increase efficiency and production, thereby lowering costs.

These outstanding synthetic enamels in particular can be used for either baking or air-dry dipping, or spraying — will not chip or crack, and hold up on top edges and corners.

Non-settling
Non-flooding
Non-skinning
Non-sagging

Courtesy of Phila. Lawn Mower & Mfg. Co.

Manufacturers of Industrial Finishes for every purpose.

YARNALL — THE SHIELD OF PROTECTION

YARNALL PAINT COMPANY
Industrial Division
Philadelphia · · Penna.

applied to rubber surfaces by dipping, spraying, or may be wiped onto a surface with a soft cloth, sponge or brush. All practical methods of commercial application now in use may be employed.

Drying time required is short. In most cases the dressings dry in about the same time as a thin coating of water. Faster drying time is possible when the surface to be coated is warm or when the wax emulsion is heated to slightly above the room temperature before application. Still another method is to blow warm air over the treated surface immediately after application.

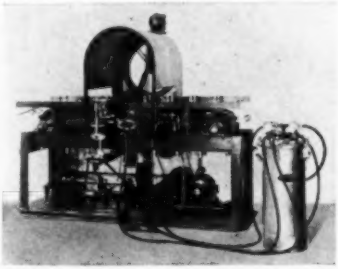
Artillery Shell Sprayer

A fully automatic machine to spray coat the insides of projectiles has been built by the Eclipse Air Brush Co., 400 Park Ave., Newark, N. J.

The machine, as illustrated, sprays the insides of 155-mm. shells at the rate of 500 an hour, although this same type machine can be built to handle any size projectile or other cylindrical object.

The shells are picked up by metal arms from the conveyor belt and carried along in a horizontal position on the machine to a point in front of an automatic spray gun fitted with an extension nozzle. A master switch trips the trigger on the gun as it starts to move forward, and a rotating device with which the gun is synchronized, spins the shell to insure an even coating. As soon as the nozzle has withdrawn from the projectile, the shell moves along, making room for the next one.

At the end of the machine the metal arms deposit the sprayed shell, still in a horizontal position, on another conveyor belt.



Sprays shells at the rate of 500 per hour.

Maintenance Paints

The Industrial Maintenance Division of S. C. Josnson & Son, Inc., Racine, Wis., announces a new line of maintenance paints for use in factories, hospitals, public buildings and institutions, to be known as Johnson's Wax-Fortified Paints. The impregnation of these paints with wax particles produces a finish that is difficult to mar and easy to clean. The new line includes Mill White Gloss, Mill White Flat, Commercial Interior Gloss, Commercial Interior Flat, Transportation Enamel, Undercoat for Johnson's Wax-Fortified Paint, and Primer for Johnson's Wax-Fortified Paint.

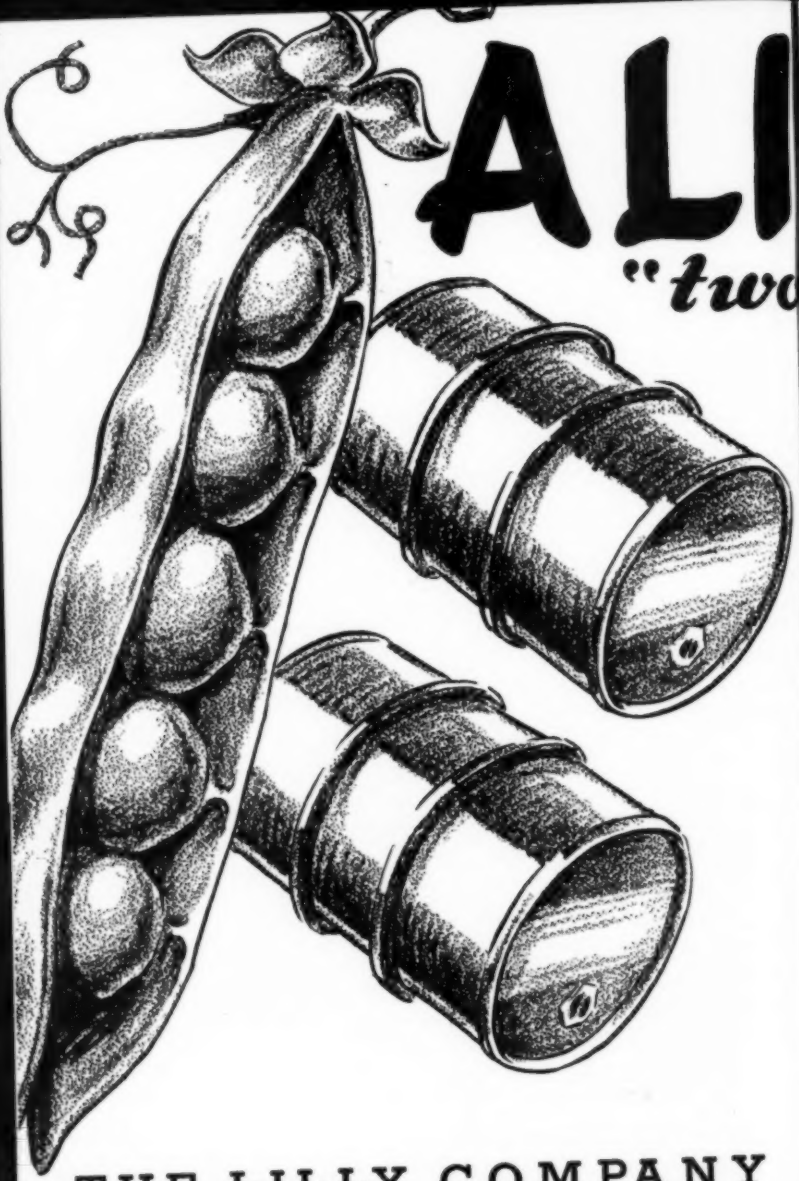
H-Scale Pearl Essence

H-Scale Pearl Essence is a dispersion of very minute pure white nacreous crystals suspended in vehicles convenient for its incorporation in various types of plastics and coating materials. The pure white H-Scale is used in plastics, whereas the natural, or B-H-Scale is generally recommended for coating material applications.

Because of the remarkable brilliancy of H-Scale, only a small amount is required in a clear lacquer or dope to produce a film with a silvery sheen or luster.

B-H-Scale may be readily incorporated in lacquer and other coating materials, and applied by spraying or dipping or by any other means of application generally used. The coating industry generally applies B-H-Scale in individual coats over a metallic or pigmented surface. Irregular or curved surfaces enhance the artistic effects.

The technique of application does



THE LILLY COMPANY

HIGH POINT, N. C.

...IKE as two peas in a pod...."

yet DIFFERENT "as night and day"

TWO finishing materials may be identical in quality and merit, the ingredients in both representing an equal value —and yet they may be entirely different in characteristics. One may be flexible, designed for use where flexibility is of utmost importance. The other may be almost brittle, with an extremely hard surface, for use where flexibility is not necessary. Some may be formulated to dry fast, others slow. In fact, there are thousands of ways to make finishing materials, but there is only **one** finishing material for **you**—and that is the "right one". Our slogan "With the right finsh—you'll finish right" is of greater importance now than any time during the ten years we have used it . . . and we are also better equipped to produce that material for you. Our efforts have been concentrated, our staff enlarged, our laboratories and plants expanded—always with one predominant thought—that of producing specific finishes for specific products and purposes. With this background of experience we are well prepared and well qualified to make the "right" finish for you, so that **"With the right finish, you'll finish right."**

LILLY VARNISH COMPANY

INDIANAPOLIS, IND.

Great Britain and Europe: Apply Jensen & Nicholson Laboratories, Stratford, London, England

not materially differ from ordinary methods employed in spraying top coat lacquers except that ingenious means of orienting the pearl scale in clear lacquers may be adopted by the spray operator to produce decorative and novel effects. Four to eight ounces of B-H-Scale per gallon of clear lacquer is usually sufficient to produce the decorative effects desired.

When B-H-Scale is incorporated in pigmented lacquers in accordance with the direction given by the manufacturer, an unusual effect is produced. The finish has a very brilliant luster and a silvery sheen.

This decorative material is a product of the Celluloid Corp., 290 Ferry St., Newark, N. J.

Weather-Resistant Synthetic Coating

The development of a method of processing Koroseal — the synthetic thermoplastic material—into a transparent and highly durable film with wide industrial application, is announced by the B. F. Goodrich Co., Akron, Ohio.

The film development is the seventh major product field invaded by Koroseal, the synthetic created from limestone, coke and salt, and climaxes five years of intensive experimentation, according to Dr. H. E. Fritz, sales manager of the synthetics division.

"Quite unlike other films," Dr. Fritz said, "Korosal film is resistant to outside exposure—sun, oxygen, and extremes and changes of temperature. In addition, the new film is extremely water and moisture - resistant, our tests have shown."

Glass-clear and highly flexible, the film is now being produced in gauges ranging from .001-in. and up. It is made in a variety of colors in transparent, semi-transparent, translucent, and opaque forms, the announcement said.

While the chief uses of the film are in water-proofing and packaging materials, its chemical inertness, flame resistance, and electrical properties make it valuable for laminating chemical containers for holding acids and corrosives and for insulating fine electric wire and cable, Dr. Fritz said. Other more obvious adaptations, he added, are rain-wear garments of all kinds, shower curtains, window draperies, aprons, and refrigerator bags and food coverings.

Guard for Air-Motored Mixer

A metal ring guard that also acts as a stand is now available on clamp-type portable Pneumix air-motored agitators made by the Eclipse Air Brush Co., 400 Park Ave., Newark, N. J. The ring protects the propellor from contact with the mixing vessel when in use, and provides an easy means of storage as it eliminates the necessity for suspending the mixer when not in use.

The guard ring also serves as a support.

You can always Depend on MILBURN

FINISHING, WELDING and CUTTING EQUIPMENT

TYPE OM SPRAY GUN—Light in weight, compact. Operates as production unit for continuous service or for touch-up work. Features "Hollow Air" atomizing principle. Top efficiency with all types of spray material.

MILBURN CUTTING AND WELDING TORCHES—Sturdily constructed to highest government standards. Illustrated is the Type HMS—a modern development in the welding art. With attachments it can be used for welding, brazing, soldering and cutting.

MILBURN CUTTING AND WELDING TIPS—Made of special rolled copper and embody outstanding features to give high efficiency, longer life and lower consumption of gas. Interchangeable.

Write for complete catalog of paint spray equipment, welding and cutting apparatus and regulators.

The **ALEXANDER** MILBURN *Company*

1402 West Baltimore Street — — Baltimore, Maryland

"HARDER, T

More Uniform Finish with A & N

Infra-Red oven at Eaton Manufacturing Company

SPEED PRODUCTION; SAVE SPACE Faster production and a finer finish are two of the important benefits which the Eaton Manufacturing Company, Cleveland, obtained when they switched to Ault & Wiborg's infra-red baking finish. Eaton is one of the leading manufacturers of automobile heaters, and their production usually runs to 7,000 heaters for an eight-hour day!

Previously, Eaton used an airdry finish. With Eaton's large production, a considerable amount of space for drying racks was required. Furthermore, rejections caused by lack of finish uniformity and by accidents due to handling the wet finish were not uncommon.

Then Eaton adopted Ault & Wiborg's extra-tough, resistant infra-red finish, baked on in an infra-red tunnel—the largest one in Cleveland. The results? Heater parts now leave the conveyor tunnel bone dry in six minutes! Production has been speeded up tremendously. In addition, rejects have been drastically reduced, since the finish is much more durable. It resists chipping, marring, scratching. It is smooth and uniform—changes in room temperature and humidity do not affect it.

Here are a few of the many products being finished with Ault & W

FILING CABINETS · OIL BURNER UNITS · BEVERAG
RADIOS · CASH REGISTERS · VACUUM CLEANERS

AULT & WIBORG INF

...R, TOUGHER

...h A & W Infra-Red Baking Formulas"

...Says Eaton Manufacturing Company

BOTTLENECK ELIMINATED With 125 large drying racks out of the way, emergency orders may be handled without running into the production "bottleneck" formerly encountered in the drying room. Now, 15 minutes from the time the heater parts emerge from the infra-red oven, they are assembled. In 10 minutes more, the complete heater is packed, ready for shipment. Rush orders are handled with ease!

Eaton is only one of dozens of large manufacturers, the leaders in their fields, who have recently turned to Ault & Wiborg's infra-red finishes to achieve much faster schedules and a finer finish for their products. Storage files, cash registers, vacuum jug shells, oil burner units, water heaters, electric appliances, pre-fabricated steel building sections, washing machines, plastic radios, casket hardware, vacuum cleaners, switch boxes and automobile moldings are just a few of the metal objects being finished by infra-red methods and with Ault & Wiborg materials.

Remember! Leading infra-red users have *proved* that A & W infra-red finishes cure faster to harder, more flexible films.

If you are considering the use of infra-red, write for more information on how these finishes can speed your production, with resultant economies. Ault & Wiborg Corporation, Dept. I.F.A., 75 Varick Street, New York City.

...Infra-Red Baking Materials

...PLASTIC

...MACHINES

...INFRA-RED FINISHES

The four metal supports that hold the ring in place protect the shaft and prevent its getting out of alignment. Two metal handles alongside the air motor, at the top of the frame, facilitate lifting the agitator from the mixing vessel.

The addition of the guard in no way affects the features of the Pneumix agitators; fire and explosion-proof performance at any speed up to 6000-rpm.

Porcelain Cement

A repair material for hard white finishes. It is somewhat similar in appearance to stick shellac . . . . is as white as porcelain or refrigerator enamels and does not yellow with age nor is it discolored by heat. Very adhesive to metal or wood. A product of M. L. Campbell Co., 706 E. 19th St., Kansas City, Mo.

Examine Surfaces with "Magni-Lite"

To magnify surfaces for close inspection, by daylight or artificial light, Mizzy, Inc., 105 E. 16th St., New York, N. Y., announces the Brady Magni-Lite. It is excellent for examining the condition of surfaces before, during and after finishing. It is very useful when making tests. According to the company's illustrated bulletin:

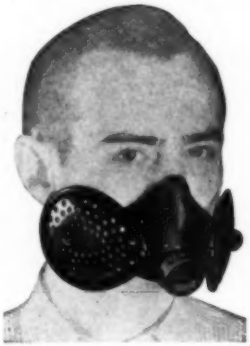
"The Magni-Lite is specially made to combine illumination and undistorted magnification in a single instrument. In all models, daylight rays are concentrated directly on the subject which, in turn, is viewed through a powerful magnifying lens.

"The Magni-Lite is used in inspection departments or during the course of manufacturing to examine raw materials, work in process and finished products."

Several different handy models are available, suitable for examining surfaces under various conditions that prevail in the modern factory, laboratory and office.

New Respirator for Nuisance Dusts

A new respirator, said to incorporate increased comfort and fully efficient protective features, is announced



Allows free vision; conversation.

by Chicago Eye Shield Co., 2362 Warren Blvd., Chicago, Ill.

Called the Cesco No. 94 Healthguard Respirator, the unit carries a recently issued approval by the U. S. Bureau of Mines for protection against Type A (silica), lead and nuisance dusts.

Outstanding among improvements claimed for the new respirator, is the manner in which the soft-moulded rubber facepiece fits low on the nose. This feature is said to eliminate obstacles to vision and enables the user to wear spectacles or goggles in conjunction with the respirator.

Operating features include a specially designed metal filter box that guards replaceable filters, with an overall filtering area of approximately 40-sq.in. to promote easier breathing. Newly designed exhale valve incorporates a speaking diaphragm to permit a normal exchange of conversation.

The manufacturer states that the new No. 94 Respirator functions with a high degree of efficiency against all common dusts, making it unnecessary to change filters under average conditions.

6 COATS IN 8 HOURS

WITH S-W FINISHES!

reports Robert W. Irwin Co.

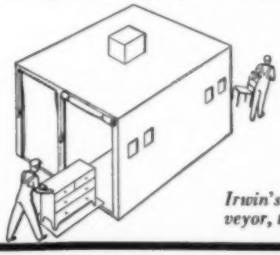
Typical Irwin piece is this well-designed console table.

Drying Time Cut by 20 Hours,

210 FINE PIECES FINISHED DAILY

USING finishes specially formulated by Sherwin-Williams, and a conveyorized force-dry kiln developed by their own engineers, Robert W. Irwin Company is setting new standards in the finishing of fine furniture.

In a room scarcely 100 feet square, Irwin operators spray six coats on 210 pieces per 8-hour day! Water-stain and wash-coat, a second wash-coat, filling, matching, sealing, and two coats of lacquer—all special Sherwin-Williams products—make up the Irwin Finishing process. Drying temperature is 120°-125°F.



Irwin's drying kiln employes conveyor, temperatures of 120°-125°F.

Labor Costs Cut, Too

Yet many manufacturers *without* space problems are adopting similar systems, because of labor and cost savings and the fine finish obtained.

Would you like to try these furniture finishes formulated by the world's largest paint manufacturer? Write Sherwin-Williams Co., Cleveland, Ohio.

SHERWIN-WILLIAMS

INDUSTRIAL FINISHES

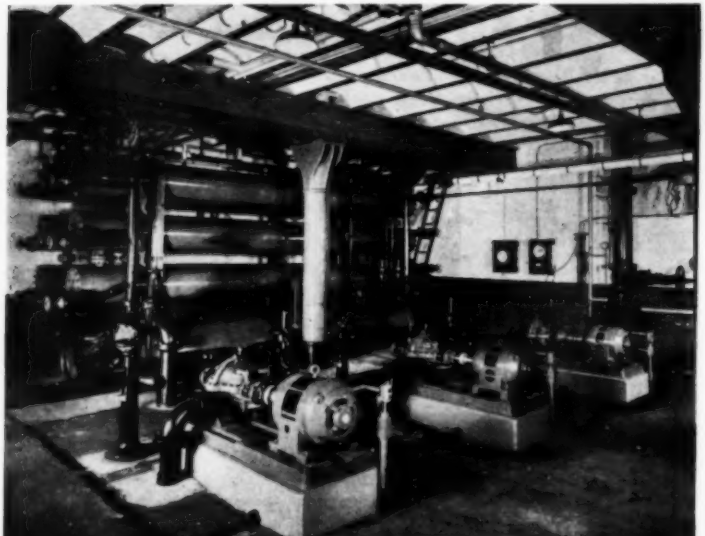
Metal Protective Finishes

BY J. A. MEACHAM
Manager, Maintenance Division,
The Sherwin-Williams Company

THE theoretical causes for the corrosion of iron have been discussed in detail by many authorities. All agree that complete protection would be afforded if a thoroughly waterproof coating of paint could be applied. However, no paint coating is completely impervious to moisture, which is the basic cause of all corrosion. Furthermore, the usual thickness being not over 1/200 of an inch, the paint film is likely to be broken in service. For this reason, the initial coat of paint in contact with the metal must contain chemically active pigments which will retard or inhibit corrosion, even though the film permits moisture to pass through and reach metal surface.

Rust-Inhibitive Primers

Red lead, lead chromate, zinc chromate and blue lead pigments have proven, through years of research and service, that they do retard and inhibit corrosion. Therefore, as a preliminary step, every metal surface should be coated with an inhibitive primer of this type.



Interior machinery requires a durable, moisture-resisting enamel. Compressor synthetic finishes produce a hard, tough surface, easily cleaned. Photograph, Sherwin-Williams Co.

A thorough cleaning and priming with rust-inhibitive paint are important before modern structural steel work receives its final coat of paint. Photograph, Sherwin-Williams Co.

The finish coats, when applied over a suitable inhibitive primer, serve as a protective coating for the primer and provide the desired color. Finish coats, therefore, must be essentially resistant to the destructive influence of weather, sunlight and such fumes as may be present.

Merits of Synthetic Coatings

Great improvements have been made in paint vehicles in recent years through the use of synthetic resins. They have greatly increased water resistance, hastened drying, made harder and tougher finishes, and have materially improved the appearance of outside paints by enabling them to retain their gloss for longer periods of time.

Synthetic vehicles are used on metal surfaces both in primers and finish coats. They are used for normal outdoor or indoor exposures, as well as for severe fume conditions. Synthetic finishes are not widely used, however, on wood.

In general, alkyd synthetic finishes are selected for best performance out of doors on metal, since they have the ability to retain their gloss under sunlight and have outstanding weather durability.

Phenolic synthetic vehicles are selected for maximum resistance to acids, alkalis, and moisture. The desired pigment combinations may be used in both types of synthetic vehicles.

Thickness of Paint Film

It can be demonstrated that the ability of a paint film to resist the passage of water is in direct proportion to the film thickness. More and more we are coming to believe that a greater total thickness of paint increases the protection afforded. For this reason, the application characteristics of a paint are important. It must apply readily so the operator can produce a full, uniform coat on all parts of the structure.

If the paint is too thick, the result is uneven distribution, with too much paint on one part of the surface and too little on another. If the paint is too thin, it flows out into a thin film which does not give the required protection. If it dries too slowly, the film may be injured in handling.

4-Coat and 3-Coat Work

With paints of proper consistency, as many as four coats are now being recommended for new work on important structures, usually consisting of two priming coats and two finishing coats. One priming coat is applied in the shop; a second coat of primer is applied in the field, after erection. This covers any skips in the first shop coat or abrasions caused in transit. The two additional finish coats then afford protection for the primers.

Of course, good protection can be achieved with three-coat work, that is, one primer and two field coats.

Aluminum Paints

Aluminum paint is used considerably for metal protection and, with properly selected vehicles it gives good results over an inhibitive primer. The individual flakes of aluminum over-lap in horizontal layers and the distance that moisture must travel from the outer surface to reach the steel is materially increased as the moisture must follow a devious and, therefore, longer path around the ends of the aluminum flakes. This, in effect, increases the net thickness of the film, and it is claimed the ability of aluminum paint to exclude moisture is thereby increased.

Preparation of Surfaces Before Application of Paint

No phase of metal protection with paint is more important than surface preparation. This is true for new steel as well as repainting work. It is essential that rust, mill scale, and foreign material be removed before the paint is applied.

Mill scale is an oxide of iron, formed on the surface in the process of rolling. If the mill scale were a continuous film, firmly adherent at all points, it would of itself be an excellent protection against further oxidation and would not need to be removed. But mill scale is not continuous and there are numerous weak spots which permit moisture to enter. Rusting takes place under the scale, eventually forcing off the scale itself and the paint which is applied over it. For this reason, good practice requires complete removal of all mill scale, or at least that which is not tightly adherent to the metal.

DURABILITY

A Recognized Quality

IN

RELIANCE

FINISHES

TUF-TEX RUBBING VARNISH · SPEDE-VAR

DURATONE STAINS SYNTHENOID ENAMELS

LO-VIS-LAC LACQUERS

VENEER-ITE AND BONNIE WOOD

RELIANCE VARNISH COMPANY

INCORPORATED

LOUISVILLE KENTUCKY USA

Various methods are employed for cleaning steel, including pickling, sandblasting, wire-brushing, weathering, chemical treatment and flame cleaning.

Of course, pickling is hardly practicable for structural steel work.

Sandblasting; Wire Brushing; Chemical Treatment

Sandblasting is an effective means of removing mill scale and rust but, according to some authorities, it has the disadvantage of making the exposed steel, after blasting, highly reactive and, therefore, likely to corrode very rapidly. A sandblasted surface must be covered with paint immediately.

Wire brushing, by hand or power-driven brushes, will remove loose scale. If the work is well done, this is a satisfactory means of preparing steel for painting. The tightly bound scale, which is not removed by brushing, is not considered detrimental to paint adhesion. However, careless brush work is of very little benefit and the closest inspection of this is necessary.

Weathering, that is, leaving the steel exposed for considerable periods of time, will remove the scale but, in the meantime, the steel acquires a coat of red rust. According to results of tests by the A. S. T. M., panels treated in this way show more rapid corrosion after painting than panels which are painted without being weathered.

Chemical treatments are proprietary compounds containing phosphoric acid, which convert the steel surface into a deposit of iron phosphate. This destroys existing rust and passifies the surface so that further rust does not form easily. Under closely controlled conditions, as for example in a shop on a manufactured product, this method is highly effective. For structural steel work, however, the practical difficulties have not been overcome entirely. It is easy for excessive quantities of the phosphoric acid to accumulate in pools and crevices and the application of paint over such areas is inviting trouble.

Flame cleaning is a recent development. Small, brush-like flames are moved over the surface and it is claimed that the heat drives out moisture and loosens mill scale. This method has not been widely tested as yet but offers excellent possibilities.

For preparing a previously painted steel structure which has been badly neglected, with the steel heavily corroded, of the methods suggested above we would consider sand-blasting the best solution.

Finishing Machine Equipment

The question of finishing machinery and equipment on the interior of the plant may merit a brief discussion. As these are metal surfaces, the principle of using an inhibitive type of primer, such as lead or zinc chromate, on all bare metal is important. The development of synthetic enamels has made it possible to obtain beautiful finishes in a wide selection of colors which are ideal for machinery and equipment. They have fine covering ability, will dry quickly, flow into a smooth gloss or eggshell finish, as desired, and are durable.

Special synthetic enamels of the phenolic type are available where chlorine and other chemical fumes create really severe conditions.

The finishing of a piece of equipment to give a superior appearance is in good part a matter of skill on the part of the mechanic doing the work. Sanding, filling, sealing and finishing are required when the surface is uneven and chipped.

Would you like to be *FREE* of Finishing Problems?

Possibly the turn to Hilo Vitra Carlite will do that for you, as it has for so many satisfied users of this Synthetic.

ANSWERS many of TODAY'S FINISHING NEEDS

This quick bake, 100% synthetic is always dependable. It may be applied by spraying, dipping, or tumbling. It covers well with one coat and lays on with a smooth full film. It is hard, tough and elastic. The colors are brilliant; it's finished surface is glossy and porcelain like in appearance.

HILO

SEND FOR DESCRIPTIVE BULLETIN.

HILO VARNISH CORP.

47 Stewart Avenue Brooklyn, N. Y.

Hilo Varnish Corp.
47 Stewart Ave., Brooklyn, N. Y.

YES! You may send me Bulletin No. 21 on Hilo Vitra Carlite. Also send me a sample in White ..... Black ..... Color .....

Firm Name ..... Your Name .....

Address .....

Certain metal surfaces are largely hidden from view and do not require painting for decoration. It has been found that economical protection can be afforded such surfaces by applying low-cost bituminous paints frequently without the use of primers. These paints are black or very dark in color and do not present an attractive appearance but, in many cases, excellent protection can be obtained at reasonably low cost.

A great deal of experimental work has been done in the field of metal protection and much progress has been made. A few fundamentals continue to be of outstanding importance: The use of rust-inhibitive chromate pigments for the priming coats; improved synethic finishes; adequate film thickness, proper preparation of surfaces.

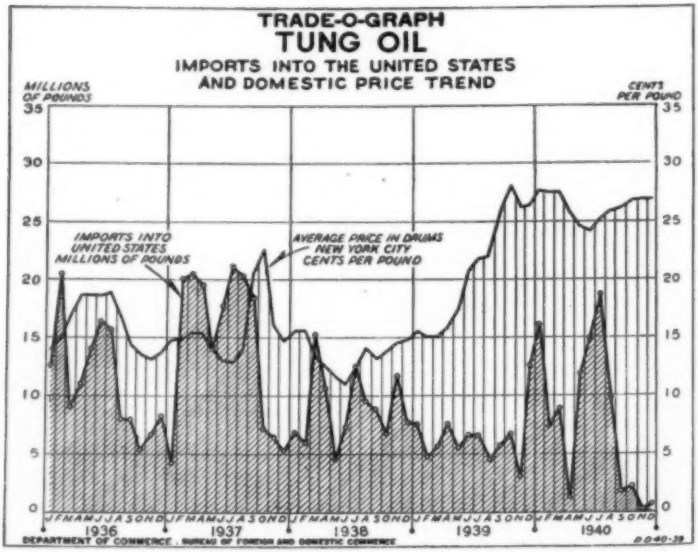
These are the foundation stones for success in protection of metal surfaces wherever they may be found.

Metal Cleaning with Abrasives

The American Foundry Equipment Co., 555 S. Byrkit St., Mishawaka, Ind., has just published an attractively colored, 72-page testimonial book entitled, "What Users Say About Wheelabrator Performance".

Some of the many users of Wheelabrator airless abrasive blast cleaning equipment were asked for their comments on its performance. Letters from 64 users who replied are included in the book.

A handy index to the letters is presented to enable prospects with metal cleaning problems to find users who have solved similar problems. This index is classified as to industries represented. Pictures and descriptions of the complete American line, a list of American sales representatives and a view of the plant are also included. A copy of this new book may be obtained by writing directly to the manufacturer.



A GOOD START

...but how about the FINISH?

In manufacturing as in horse racing the start is very important but it is the FINISH which really counts. Just as a horse is trained for months to acquire perfection at the barrier to enable him to get off to a good start for a winning race, so may your engineers spend weeks and months in developing an idea for a new product . . . Your tool maker may spend weeks making tools for its manufacture, and your manufacturing department may put in hours of overtime working out production problems but . . . *How much time is devoted to thought about the finish?*

Yet the finish, a film of lacquer or synthetic, measurable only in thousandths of an inch, can be and often is the most important part of the product. In many cases it must be decorative as well as protective . . . It must be easy to apply and must give a maximum of efficiency at a minimum of cost. You will find these and many other advantages in Egyptian Industrial Finishes, each one of which is so formulated that it can be relied upon to measure up to the task for which it is selected.

The next time you are in the market for a finish for your product, it will pay you to consult one of our representatives or write us for information.

THE EGYPTIAN LACQUER MANUFACTURING CO.
ROCKEFELLER CENTER NEW YORK

EGYPTIAN FINISHES

EGYPTIAN Superior FINISHES

Painting Glass

We are making a cheap line of breakfast-room furniture and would like to have information as to how fret work is painted on china-cabinet glass so that it will stay put and not come off when the glass is being cleaned.

We have seen this method used on furniture, doing away with the expense of fret work. We have also seen an example on milk bottles where extra heat does not erase the paint. — G. & B. (Master Craftsmen).

There are several different ways to paint glass so that the paint will stick. You can sandblast that part that is to receive paint, by masking those areas which are to remain clear. Then apply your decorative colors free hand or by stencil. Color enamels that are baked will probably be more durable and satisfactory than air-dry enamels.

Another plan is to apply process colors by silk-screen-stencil on the smooth glass and then subject the painted glass to heat treatment—something on the order of firing painted china ware.

In a letter we are submitting the names and addresses of companies to write to for further information on this subject.—ED.

Paint That Changes Color by Heat

In your February, 1941 issue of INDUSTRIAL FINISHING, page 93, reference is made to a request for a paint that will change color in proportion to the heat applied at a temperature approximating that of engine cylinder heads, etc.

About 18 months ago we purchased a paint, such as you wish to procure, for a similar problem. This finish was applied to resistor bodies and, upon application of heat, it changed color in proportion to the heat applied. This color change is not reversible; it changes from a brilliant yellow to a very dark gray. Variations in temperature are indicated by changes in color intermediate between gray and yellow. Application of heat changes the bright yellow color to a dark gray, and removal of the heat leaves the color in the shade that was reached by the highest temperature.

The firm manufacturing this material is now out of business, but the original person developing this material is connected with the Reynolds Research Corp. If you will write to him, I believe that he will have exactly the material you are seeking.

The cost of the paint is rather small, running but a few cents per square foot of surface.—S. S. Co.

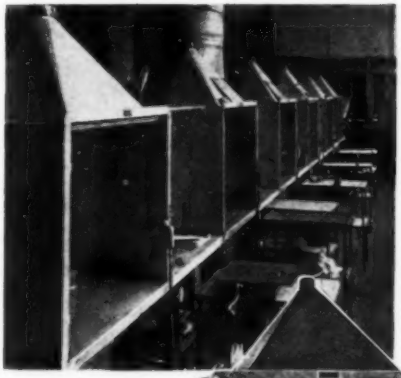
EDITOR'S NOTE: The above was written before S. S. Co. read March issue of INDUSTRIAL FINISHING which contained an article that gives some information on this interesting subject.

Questions; Answers

Questions are welcome and will be answered promptly by mail. Readers are invited to prepare and send in additional information relating to any of these questions and answers.

AAF Sinuous FILTERS

cut original cost and maintenance

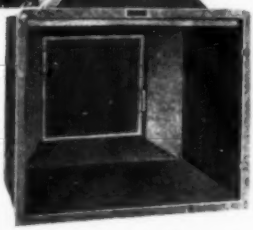


Worthwhile initial savings in addition to maintenance savings are made possible by the use of American Sinuous Filters in spray booths to take the place of standard ventilating units equipped with special louvers. Serious maintenance problems are eliminated by the removal of spray vapor before it reaches fan and ducts, prevents accumulation on fan blades and reduces fire hazard. Write for Bulletin No. 224 which gives complete information data.

AMERICAN AIR FILTER CO., INC.
Incorporated
246 Central Avenue
LOUISVILLE, KENTUCKY

SINUOUS SPRAY BOOTH FILTER

Consists of cell and frame permanently fastened to sheet metal partition at back of booth. Cells are held in place by spring latches. Each cell has a capacity of 1500 c.f.m.

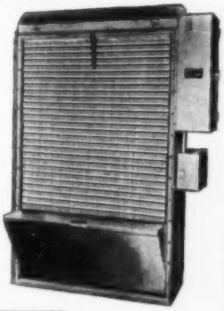


AMERICAN AUTOMATIC FILTERS FOR FINISH DRYING

Used for larger drying room ventilation to protect finish and accelerate drying. Bulletin No. 240C.

AIRMAT DRY FILTER

For use in smaller drying rooms where drying time can be materially lessened by bringing filtered warm air in contact with finished surfaces and exhausting the fume laden air. Bulletin No. 230B.



AMERICAN AIR FILTERS FOR PROTECTING PRODUCT FINISHING

What's "Melamine"?

At the Furniture Show in Chicago, held during the early part of January, several manufacturers indicated a finish on outside furniture as "Melamine", which we understand is not an enamel, but some new urea resin material that takes the place of porcelain enamel in a much softer finish, to prevent cracking and chipping.

We have written several paint companies in reference to this matter, but thought that you might be able to tell us the name of the manufacturer of "Melamine" finish.

We are not interested in seeing a lot of salesmen who will probably say that they can furnish us the old type of enamels, but are only trying to locate the manufacturer of this product. If you can give us any information along this line, it will be greatly appreciated.—S. C. Co. (Garden Furniture).

The resin you inquired about is a product of the American Cyanamid Corp. It is an urea-formaldehyde which bakes or cures at much lower temperatures than previous urea-formaldehyde resins. It makes possible the formulation of exceptionally white baking enamel for cabinets and refrigerators which are baked 20 to 30 minutes at 200° F. I understand that these fast and low-baking types do not necessarily have as good all-around characteristics as the materials that would bake in, let us say, 15 minutes at 300° F., but they (low-baking Melamine type) fill a definite need for baking enamels of the urea type for use by manufacturers whose baking equipment will not attain temperatures of 300° F.

Certain finish manufacturers are not informing the trade that their enamels contain Melamine, but they do have them available. Some of the users of these enamels know that they are Melamine-type enamels and probably it will be only a short time before the finishing trade in general will be calling these enamels by this generic name, although it is a trademark of an ingredient material.—H. DANIELS.

A "Piano Finish" for Caskets

Editor's Note: This is another reply to the above question which appeared in March issue, page 68. The author of the following answer prepared his reply without having seen W. T. Smith's article, which was published with the question. The Editor referred the question to both men and both prepared interesting articles, but they seemed too long for both to appear in one issue.

"Piano finish" is the term applied to the polished built-up finish used on pianos and other expensive objects, where cost of application is secondary to long life and beauty. Piano makers have a reputation of many years to protect, therefore their finishes, like Caesar's wife, must be "above suspicion."

My radio had a piano finish when it was new, a year ago, but now it is badly checked and peeled and clearly shows the hurry-up methods that are used in some of today's cabinet finishing. The schedule described below takes more time but it will look as good a year from now—or five years—as it does today.

* * *

Assuming that the casket has been smoothly patched (where and if needed) and sanded—and there

HOW DO YOU USE SHELLAC

As a sealer? For a fine finish? Do you put on several thin coats?

...We'd like to know! The Shellac Information Bureau is conducting a huge "Information Please" roundup of finishing facts. Every furniture manufacturer, every maker of cabinets, auto parts, or office equipment has his own techniques...his own troubles. By collecting hundreds of individual experiences, the Bureau is building up a source of information for dozens of industries.

What Are the Advantages of Shellac?

What has it got that you can't find in some other finish? Is it tougher? Longer wearing? More attractive?...Your own experience with shellac will form the basis of our finishing handbook. We invite you to tell us how you work with it...and how well it works with you.

"Shellac is all right, but..."

Is there something about shellac that doesn't satisfy you? Some problem it presents? We're interested in hearing from you even if you use a limited amount of shellac. We want to know what you really think of it...how you'd like to see it improved and developed. Favorable, indifferent, or strictly unpleasant...we want to hear your opinion! Write to...

SHELLAC INFORMATION BUREAU, 65 Pine Street, N.Y.C.

P. S. We're sending a NEW VEST-POCKET PROFIT FLASHER—figures markups, selling prices, profits...to every member of the finishing industry who lets us know how he feels about shellac. No strings attached...just our way of saying thanks!

cannot be many patches, or large ones—the first operation is staining. For walnut the usual practice is to use light brown filler and omit staining as a separate operation. If a darker finish is desired, use a walnut non-grain-raising stain before filling. The same type of stain in a deep red color can be used on mahogany.

After the stain is sprayed on, it must dry at least two hours and then be given a wash coat of lacquer sealer. This should dry another two hours; then scuff the surface with No. 400 sandpaper and dust it so that the filler can penetrate every opening of the grain.

Mahogany has much larger pores than walnut and for that reason it must be filled more carefully. Two fillings are good insurance against pinholing, the second filler being mixed a little heavier than the first. It is understood that the filler must be padded well into the wood and rubbed off across the grain before cleaning up. For best results, the filler should dry overnight before it is sealed. Use a quality sealer containing high solids—and two coats should be applied to allow sufficient latitude for sanding. No. 240 abrasive paper is not too coarse, and at least four hours should elapse before sanding.

Ring and hooks for use in safely gripping drums of material to be hoisted, moved and lowered with overhead chain hoists.

The next day after sealing the finish coats may be applied. Some casket manufacturers use lacquer and some use varnish. Varnish has slightly more "depth" and is certainly cheaper, but few plants are equipped with dust-free finishing rooms for drying varnish and they cannot afford the extra drying time and space that is required. On the other hand, lacquer will cost considerably more per gallon but it makes a faster and more durable finish. Another factor in favor of lacquer is that in most casket finishing rooms there are metal caskets being sprayed and where this is the case, a small but perceptible amount of silver dust is likely to show up in a varnish film.

Recently I talked with a man from a middle western plant that specializes in walnut and mahogany caskets, and he stated that their work is given *three coats of varnish a week apart*, but that they always have at least 200 jobs in the process of finishing. Of course, a schedule like this requires a large volume of business and plenty of drying and storing space. I saw him at a recent convention and I must admit that his company's products were the most attractive on display.

It seems however that three weeks of drying time is unnecessary. In fact, three coats sprayed on a day apart and dried in a warm ventilated room ought to do the job just as well.

What would *Spring* be

Without a *Finish* of Gorgeous Coloring?

Spring would be drab indeed without the blending of beautiful fresh colors. . . . And, Mr. Manufacturer, the same applies to commercial products. They, too, are drab and unattractive unless they are properly finished.

Let us help you give your products the glamour that attracts buyers. Our Creative Studio is ready to serve any reputable manufacturer without cost or obligation.

ROCKFORD VARNISH COMPANY

Manufacturers of Finishing Materials

ROCKFORD • ILLINOIS

NO TAMPERING WITH QUALITY

Kindly mention INDUSTRIAL FINISHING when writing advertisers

If lacquer is used, it should be formulated for this type of work so as to be resistant to cold checking. Two double coats should be applied three or four hours apart and allowed to dry until the next day, before polishing.

If the finish is to be glossy, it can be buffed down with a sheepwool buffer such as used on metal caskets, but care must be taken to avoid burning through the lacquer because *wood does not dissipate the heat as rapidly as metal.* If a dull rub is desired, a good plan is to sand the surface smooth with gasoline and No. 320 sandpaper; then finish off with pumice and oil. In either case the appearance of the finished casket depends on the care and time expended in polishing.

All the materials used, whether lacquer or varnish, should be purchased especially for this type of finish, from a reliable house, and their technical staff will be ready at any time to give any assistance needed.—AL. MATLOCK.

Fumed Oak

In the March issue of INDUSTRIAL FINISHING, page 72, a question was asked about fumed oak finish. Mr. W. T. Smith covered this very well in his answer. The fume room is as antinque as the horse and buggy days. Every time the door was opened, everyone in the finishing department had a spell of coughing and gagging from ammonia fumes.

The South American Influence is apparent in this cleverly designed "windblown" birch dinette which will be among the new merchandise featured at the spring national home furnishings market, May 5 to 10. The removable tray on the combination bar-buffet is a useful accessory. Among the many interesting features of the group are the beautiful weathered finish, the detailed carving, the unique design of the table and case pieces the matching mirror and the ornamental wall scenes. Photo, American Furniture Mart.

NOVELTY FINISHES

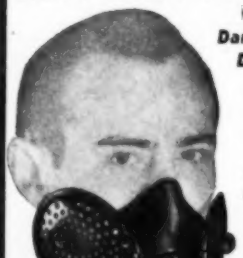
LACQUERS
SEALERS
ENAMELS
UNDERCOATS
STAINS
GLAZES
SHELLAC

INDUSTRIAL FINISHES
to Enhance the Appearance
OF EVERY SURFACE

Specially Made for All Processes
Including ROLLER COAT • GASKET DIP
TUMBLE • SCREEN PROCESS

JAMES B. DAY & CO.
CHICAGO

NEW! A BIG VICTORY
Over Dangerous Dusts!



CESCO No. 94 Respirator with new Approval by U. S. Bureau of Mines

Approval No. BM-2142

★ Find out why workmen willingly wear this comfortable, efficient new No. 94 Healthguard Respirator. Affords FULL PROTECTION against Type A (Silica), Lead and Nuisance Dusts. Write

CHICAGO EYE SHIELD CO.
2367 WARREN BLVD., CHICAGO, ILL.

Unmatched Speed
New Features
Lower Prices

New opportunities for shortcuts and savings in finishing operations are yours with one of the new AIRFLOS. Write today for illustrated catalog.

CROWN SPRAY GUN MFG. CO.
1718 Venice Blvd., LOS ANGELES, CAL.

TEN NEW Airflo PORTABLE PAINTING OUTFITS

Warehouses in Principal Cities

Today every stain maker has a stain that does all the work of the old-time fuming process. This stain is made up in half a dozen different shades. The color is produced by a chemical reaction between the tannic acid in the wood and the chemicals in the stain.

Since different pieces of wood contain different amounts of tannic acid, a toner is necessary to even up the color in the wood. After this application of toner is dry, the desired shade of stain is applied, followed by coats of white shellac or whatever may be used. When these coatings are dry, the surface is waxed with a brown-tone wax. Filler is not used in this type of finish.—J. K. COOPER.

Fostoria Acquires Thibault License

Acquisition of exclusive manufacturing and sales rights from Dewey Thibault and Co., Boston, Mass., on the latter's infra-red process equipment designs is announced by The Fostoria Pressed Steel Corp., Fostorio, Ohio.

According to C. W. McDaniel, Fostoria Vice President, the Thibault trade name "EvenRay" is a part of the agreement, and equipment made under this license will be branded, "Fostoria EvenRay ParaSphere." The name "ParaSphere" is the Fostoria basic trademark for its infra-red process line.

Outstanding features of this new design are that it provides an even distribution of radiant energy over areas radiated without high and low spots, and that use of lower wattage infra-red lamps is permitted to accomplish desired results in drying, baking, dehydrating, and preheating operations.

Shellac Information Book Free

A new booklet of authoritative information about the possible uses and merits of shellac and how to use it as a sealer coat and finish for furniture, woodwork, floors and floor coverings, has been compiled and published by The Shellac Information Bureau, 65 Pine St., New York, N. Y. The booklet contains 20 pages 4x9-in. and is attractively illustrated. A copy should be in every finisher's laboratory.

Gas Fuel for Short-Cycle Baking

(Continued from page 23)

This produces more efficient equipment at smaller cost and should be kept in mind in making comparisons where oil-fired equipment is being used or considered.

Confirming our earlier statement on this subject, it is clear that the data developed in this presentation definitely point toward a combination of radiant heating of gas burners with convection heating. By circulating the products of combustion given off by the radiant burners within the oven, we add the curing effect of this circulated air to the unshielded radiant heat from the burners themselves, which combination would point toward a compact and efficient curing installation....

Note: A copy of the complete paper (5 closely written typewritten pages) can be obtained by writing Harry W. Smith, Jr., Director of Industrial Publicity for the American Gas Association, 420 Lexington Ave., New York, N. Y.

DeVilbiss Adds Production Space

The DeVilbiss Co., manufacturers of spray-painting equipment, recently announced the addition of 50,000-sq. ft. of manufacturing space to its facilities in Toledo, Ohio.

The additional space is located at 397 Phillips Ave., in close proximity to the company's main office and factory buildings. One hundred fifty workers have been assigned to the new quarters.

Need for this expansion is due largely to the demand for DeVilbiss products in all branches of industry engaged in National Defense work.

The company's products find broad application throughout the defense industries, and are at present being used in the construction and production of everything from cantonments to shells.

FORM - A - ROC

We offer to all industries equipped for baking finishes this highly perfected, heat-converting, synthetic enamel.

FORM - A - ROC

We have combined to an optimum degree the necessary qualities of tremendous hardness, great adhesion, smooth lustrous gloss, and freedom from haze, discoloration and wrinkling.

FORM - A - ROC

Baking schedule is of great flexibility, permitting from 5 - 50 minutes at 250 - 375° F.

FORM - A - ROC

No matter which of the present worthy finishes of this type you may be using or planning to use we sincerely recommend that you investigate

FORM - A - ROC

MADE BY

THE VARNISH PRODUCTS CO.

5208 Harvard Avenue

CLEVELAND, O.

"We Do Two Times the Work With the Sterling Sander."

—Sensenich Bros., Lititz, Pa.

"We do two times the work with the Sterling Speed-Bloc Sander than we could do by hand-sanding. The work is far superior and we have cut costs substantially."

Here's the answer to your need for modern, high-speed sanding equipment. The new, portable, air-driven Sterling Sander enables one man to do the work of three—better, more uniformly, in a fraction of the time. Sands flat or curved surfaces—wet or dry—metal, wood or composition—feathers spot jobs, sands filler coats. Saves up to 75% on labor and abrasives. Soon pays for itself. Easy to operate.

WRITE FOR FULL DETAILS.

Sterling
TOOL PRODUCTS COMPANY
359 EAST OHIO STREET
CHICAGO, ILLINOIS

TURN TO CLINCO "PROTECTON"!

CLINCO "PROTECTON"

A 4 Star Feature CLEAR METAL LACQUER

★ TOUGH ★ ECONOMICAL
★ ENDURING ★ EASY TO APPLY

CLINCO "PROTECTON" opens the door to greater possibilities with plated surfaces. It offers proper protection against handling, corrosion and outdoor exposure. The necessary protection can be gained by procuring the proper film thickness with CLINCO QUALITY LACQUERS.

For more complete information on your specific problems, write

THE CLINTON COMPANY
1210 ELSTON AVE. CHICAGO

Letters from I. F. Readers

(Continued from page 8)

after it has been in use. I would also appreciate it if you can give me data on the adhesives used on different materials, such as, glass, wood, metal, plaster, and other cloth materials.

Possibly you know of some literature I may subscribe to, or some book that gives all this information.

I am writing to you because I have read several issues of INDUSTRIAL FINISHING and believe you are the best source of information on this subject.—S. C. F.

We are sending you tear sheets of some articles we have published on the subject. We are also sending a copy of your letter to leading manufacturers of flock.—ED.

Retail Furniture Finishing

We would like to know if there is a set up for a retail furniture finishing department—something to speed delivery on polished quick-drying lacquers; also french lacquers for touch-up work.—M. W. F.

Spatter Gun

We are interested in the lacquer-thinner spatter gun, as described on page 65 of Feb., 1941 issue of INDUSTRIAL FINISHING, under the code LML. —A. Co. (Electrical Equipment).

The manufacturer's name appears at the end of the article and their full page advertisement occupies page 1 of that same issue.—ED.

Silk Screen Paint; Adhenive for Flock

I am very much interested in an article appearing in January issue of INDUSTRIAL FINISHING. This article starts on page 21, under the heading, "Decorating Fine Fabrics" by Harry L. Hiett.

For some time we have been making an effort to find a satisfactory silk-screen paint, enamel or other material for silk-screening on various fabrics and textiles, both in coloring and as an adhesive for flock. Wherever flock is included, it would be necessary that the adhesive should stand a laundering for a reasonable number of times.

I would geratly appreciate any information you might be able to give me on this or would appreciate your directing this letter to the proper

A Superior Varnish for Fir or Gumwood

RX-239 SPEED-DRY VARNISH

A vastly improved, production-proven clear gloss varnish. Dries in 2-3 hours even in cold weather. A single spray coat provides the build and appearance of 2 coats of ordinary varnish.

For economy as well as for faster production, you will find that one coat of our special lacquer sealer followed by one coat of SPEED-DRY VARNISH is an unequalled combination for spray finishing fir or gumwood.

MARTIN VARNISH CO.
900 WEST 49TH PLACE
CHICAGO

LIGHT AND COMFORTABLE
PROTECTION AGAINST HARMFUL
PAINT SPRAY VAPORS
THE M·S·A *Comfo* CHEMICAL CARTRIDGE RESPIRATOR

Provides easy-to-wear comfort and safety against vapors of paints, lacquers and enamels encountered in spraying; such as turpentine, petroleum distillates, acetates, coal tar derivatives, alcohols, etc. Cartridges quickly replaceable. Bulletin EM-3.

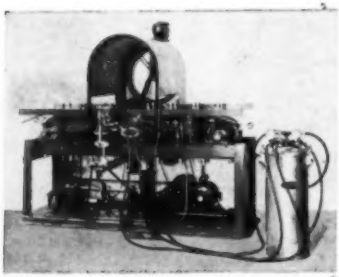
MINE SAFETY APPLIANCES CO.
BRADDOCK, THOMAS and MEADE STS., PITTSBURGH, PA.
District Representatives in Principal Cities

AIRCRAFT PLYWOOD FINISHES

After more than a decade of research, Randolph has developed a practical 4-Step System for producing on plywood, a tough, flexible finish of enduring beauty. Special portfolio will be sent on request.

Dopes—Thinners
Lacquers—Synthetics

RANDOLPH
FINISHING PRODUCTS CO.
Carlstadt New Jersey



500 AN HOUR

Automatic sprayer coats inside of 155 mm. shells at 500 an hour.

Investigate Eclipse for every spray requirement whether for manual or automatic operation.

Send for Catalog 77.

EclipseAirBrushCo., Inc.
392 Park Ave. Newark, N. J.

hands if possible. — Display Studios (Displayed Well, Easy to Sell).

We are referring your inquiry to several manufacturers and suppliers of process paints.—ED.

"Sprayable Adhesive"

Your New York office referred me to you as to some item I am interested in. The item is "a sprayable adhesive with flexible possibilities". Hoping you have some information which you can forward to me. . . . —V. R. Co. (Hats).

We believe you will admit that you have given us very little information to work on. Without knowing what you want to use this for and what services are expected of it, it would be guesswork to recommend anything. We suggest that you make inquiries from one or more of the manufacturers of adhesives, whose names and addresses we are sending you.—ED.

Tumbling Finish

ADVISE US WESTERN UNION DAYLETTER COLLECT MAKER OF TUMBLING FINISH AND TUMBLING BARREL DESCRIBED PAGE 7 MARCH ISSUE.—C. B. Co.

Air-Dry Wrinkle and Hammertone

Can you advise us as to sources of air-drying wrinkle finishes and air-dry hammertone finishes? On page 19 of your February issue I notice these are available.—I. Mfg. Co.

Finish Ping Pong Balls

WE WISH TO OBTAIN A MARBLEIZED OR VARIEGATED FINISH ON PINGPONG BALLS. POSSIBLE BY DIPPING INTO A WATER FLOATING ENAMEL OR PAINT THAT WILL ADHERE TO CELLULOID. IF YOU ARE ACQUAINTED WITH SUCH A FINISH PLEASE TELEGRAPH DETAILS TO US COLLECT.—O. O.

Wood Putty Wanted

Is there any way we can find out the name of the manufacturer of the putty mentioned in the article written by Mr. Al Matlock, in your February issue of INDUSTRIAL FINISHING? We would greatly appreciate this informa-

WORLD'S GREATEST all around ELECTRIC TOOL

DRILLS—GRINDS—SANDS—SAWS
POLISHES—SHARPENS—CARVES

The new WHIZ ELECTRIC TOOL is the handiest power tool ever made. A rugged tool for power and precision work. Drills thru 1/4 inch iron plate in 42 seconds or engraves intricate designs. Handles any material: Metals—Woods—Alloys—Plastics—Glass—etc. Saves time. Eliminates labor. Plug into any socket AC or DC, 110 volts. Chuck 1/4 inch capacity. Ball bearing thrust. Powerful, triple-geared motor. STANDARD MODEL with Normal Speed (uses 200 accessories, instantly interchangeable.) Price only $7.95.

The only DRILL TOOL with a full year guarantee.

FREE Accessory outfit (Value $2) includes set of drills, mounted 1 1/2 inch grinder, sanding discs, cutting wheels, mounted brush, polishing wheel, carving burr, etc. FREE with each Tool ordered NOW. We pay postage.

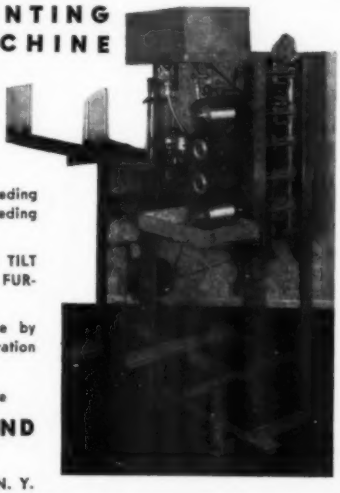
10-DAY TRIAL—MONEY BACK GUARANTEE

PARAMOUNT PRODUCTS CO.

Dept. 4-FM **545 Fifth Ave.** **NEW YORK, N. Y.**

TORRES **PAINTING MACHINE**

COATS FOUR SIDES IN ONE OPERATION



Only machine on market today coating four sides in one operation.

Any width and 1/8" to 1 1/4" thickness feeding up to 250 ft. per minute. Automatic feeding or foot pedal operation.

Recommended for SLATS, HEAD and TILT RAILS, RULERS, BILLETS, FABRICATED FURNITURE PARTS, etc.

Many machines are in production use by leading manufacturers. Satisfactory operation and service guaranteed.

Further details sent on request. Write

TORRES VENETIAN BLIND MACHINERY CO.

1945 PARK AVENUE NEW YORK, N. Y.

The increased need for aluminum, zinc and other metals for defense purposes can be partially satisfied by the use of sheet or moulded plastics.

● Our laboratories have developed special finishing materials for all types of phenolic, urea, acetate and other plastic articles, such as radio cabinets, clock cases, small motors, advertising novelties, etc. Marvelous adhesion, hardness, luster, hiding power and durability. No trouble with bubbling, chipping, printing or fading.

Send us a specimen of your plastic product and data regarding your finishing schedule. More than likely we will be able to help you avoid trouble.

THE TOUSEY VARNISH COMPANY

520 West 25th Street Chicago, Illinois

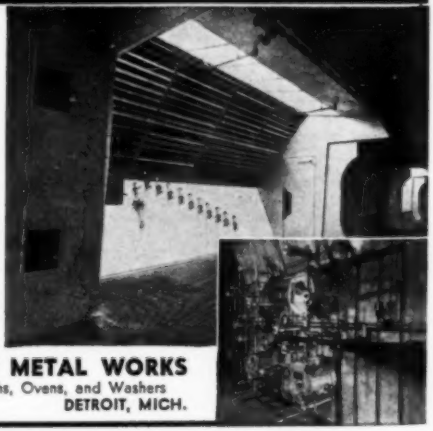
PRODUCTION FINISHES FOR ALL INDUSTRIAL PRODUCTS

PROPERLY WASHED, FILTERED AND HEATED AIR SUPPLIED TO SPRAY BOOTHS BY I.S.M.

For best results, air delivered to spray booths must be in proper balance, particularly when synthetic paints are used. This may be done in either of two ways: by group or individual unit system. We will engineer either type best suited to your purpose.

This particular installation required fresh air make-up system to be placed on roof of the building. Inset shows control and heater room for above installation.

SEND FOR OUR COMPLETE CATALOG.



INDUSTRIAL SHEET METAL WORKS

Manufacturers of Spray Booths, Ovens, and Washers

626 EAST FOREST AVENUE DETROIT, MICH.

tion.—G. W. R. (Several inquiries have come in for this.)

Yes, indeed, the information is being sent to you promptly (and to several others who have asked about the same thing).—ED.

We wish to express our view on your last January issue. It is the most outstanding analysis that ever was published. It is a great help to the finishing industry. We boost 100%.—C. T. K.

Bake Finish for Wood

In the January, 1941 issue of INDUSTRIAL FINISHING, page 56, J. W. Mchugh writes a paragraph about a clear synthetic baking finish for wood. Please send us the connection and address of Mr. McHugh, in order that further information can be obtained. —R. Y. Co. (Finish Mfr.).

Information given.—ED.

Rubbing Machine

I am interested in obtaining the tion on a portable electric, single or double-pad rubbing machine. Kindly have manufacturers of such machines communicate with me.—L. P. J.

Round Picture Frames

I am interested in obtaining the names of firms that are making small round picture frames. Those that I am most interested in are about 4-in. in diameter and are made of maple or birch or white wood.—S. M. E.

Metal Parts Washer

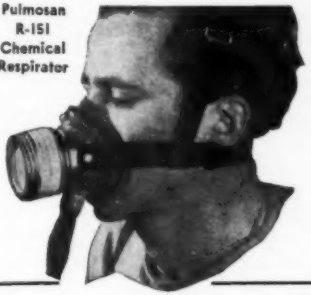
Kindly send us available literature and prices on the small metal-parts washer, as illustrated and described briefly on page 74 of February issue of INDUSTRIAL FINISHING magazine.—V. Machine Corp.

Referred to manufacturer.—ED.

Bleached Paneling

On a recent visit to California, I noticed that a number of the inner doors in the new homes are in wood paneling bleached to resemble drift wood, with a grey-green-silver cast.

Pulmosan R-151 Chemical Respirator



Protect Your Spray Men!

Give them the Pulmosan R-151 Respirator, with "double feature" protection. Chemical cartridge purifies fumes—outer filter prevents cartridge clogging, making it last longer. Safe, light, comfortable, durable. Order an R-151 for trial. Write for details.

Pulmosan Safety Equipment Corporation

Dept. IR, 176 Johnson St., Brooklyn, N. Y.

GRAINING PLATES

bring out the

QUALITY *you*

have built in

YOUR PRODUCT

AMERICAN

ELECTROTYPE COMPANY

104 E. MASON ST.

MILWAUKEE, WIS.

REMOVER

- Quickly removes all kinds of finishes and coatings.
- Saves time, labor and material.
- Easy to apply—no after cleaning.
- Doesn't raise grain nor discolor.

SPECIAL OFFER 1 gal. testing sample at drum price F. O. B. Newark, N. J.

(Also manufacturer specially formulated non-inflammable coatings.)

INDUSTRIAL CHEMICAL DEVELOPMENT CORP.
331 MADISON AVE. NEW YORK, N. Y.

NATIONAL PAINT DICTIONARY

1940 — $5.00

More than a Dictionary—an Encyclopedia. This is the most complete work of its kind now available. It includes definitions of trade names of raw materials used in the Paint and Allied industries—also charts, tables, useful information and miscellaneous data to which you can refer often. It describes all the important testing devices and apparatus used in the laboratory, together with illustrations and is strictly technical, thoroughly authentic and completely unbiased.

INDUSTRIAL FINISHING
222 East Ohio St. Indianapolis, Ind.

I understand this is done with two separate acids, one sponged over the other. I am curious to know who manufacturers the color, and could you give me the proper formula for using it on the various types of wood?—F. R. E. (Architectural Decorating).

The names of several manufacturers have been submitted.—ED.

For Rattan Furniture

We have heard of a product made by the Tropical Products, Inc., Miami Springs, Florida, called Perm - Nol, which they recommend to mix with varnish for spraying rattan furniture. Do you know anything about this product? Any information you can give us will be appreciated.—W. W. W. (Wicker Ware).

We have no information on this. We do not find the company name or product listed in any of our directories. In a letter we are submitting the names and addresses of some manufacturers of wood preservative liquids which may serve your purpose as well or better than the one named in your letter.—ED.

Metal Cleaning

In your October, 1939 issue, page 15, Mr. Raymond H. Neilson writes a very interesting article on Metal Cleaning. Could you request Mr. Neilson to let us have the names of the various firms offering the metal cleaners. — G. L. Mexico, D. F.

We presume Mr. Neilson had in mind chemical cleaners that are made and sold by his own company, the Neilson Chemical Co., 6564 Benson St., Detroit, Mich., U. S. A.—ED.

What's Published in I. F. is in Demand

We sent out so much material from the February issue of INDUSTRIAL FINISHING that we were unable to supply our clients with important items on pages 78 and 108. If you send us these pages from one of your cut copies, we shall appreciate your cooperation very much.—H. B. R. & Co. (Business Paper Editorial Service).

CUSTOMER REFERS TO ARTICLE IN INDUSTRIAL FINISHING OUR INSTALLATION AT AMERICAN METAL PRODUCTS COMPANY DETROIT RUN ABOUT DECEMBER 1939. WILL YOU PLEASE SEND US

IMMEDIATELY ONE OR TWO COPIES OF MAGAZINE CONTAINING THIS ARTICLE? THANKS.—THE R. C. MAHON CO.

Yes, the article happened to be in November, 1939 issue.—ED.

Recording Disc Lacquer

Will you kindly advise us of the business association of Mr. J. Carson, who is the author of the article entitled, "Dip Finishing Metal Recording Discs", in the February issue of INDUSTRIAL FINISHING, on page 42?—R. D. Co. (Radios).

I have read with a great deal of interest, your article on lacquer for coating recording discs (page 42, Feb. issue). Is this lacquer, referred to in your article entitled, "Dip Finishing Metal Recording Discs", a secret process and formula, or can it be purchased on market today?—S. W. G.

The material can be purchased and we are submitting the names of manufacturers by letter.—ED.

Drum-Handling Apparatus

We would like to get in touch with concerns manufacturing devices for handling full drums of paint, as described in an article entitled, "Moving Drums of Material", in your December, 1940 issue, pages 19-21.—F. F. Co. (Furniture).

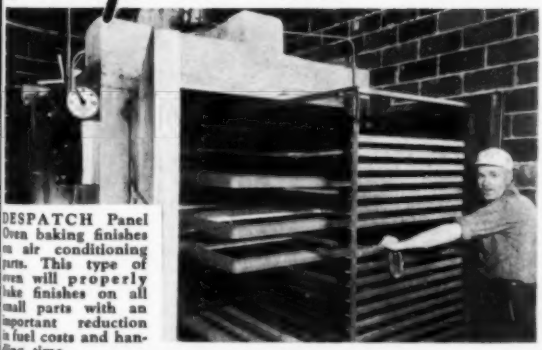
In one of your recent issues of INDUSTRIAL FINISHING, you commented on barrel up-ending equipment. We should like to have a list of manufacturers making this type of equipment as soon as possible.—H. Co.

The names and addresses of manufacturers have been supplied.—ED.

Dolls and Mannequins

I have been informed that you were the best organization to go to for information on finishes. I am eager to get the names and addresses of manufacturers of paints and colors used in coloring dolls and mannequins, for both latex and plaster compositions. —C. R. D.

Improved **DESPATCH**



DESPATCH Panel Oven baking finishes on air conditioning parts. This type of oven will properly bake finishes on all small parts with an important reduction in fuel costs and handling time.

Finish Baking and Drying

OVEN

New features to assure better finish baking results with direct or indirect fired heaters—also to assure lower fuel bills and speedier material handling.

Write Today for Bulletin No. 51

DESPATCH OVEN COMPANY

MINNEAPOLIS MINNESOTA

Industrial FINISHING

Distributed monthly to finishing room and paint shop foremen, production superintendents and company officials of metalworking, woodworking and miscellaneous industrial plants where production finishing is a major operation in parts and products manufacture.

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EDITORIAL

Camouflage Painting

Camouflage painting has stepped far beyond the experimental and speculative phases. It has become a real and extensive business in several of the warring countries. We learn that the work is carefully planned, laid out, and often executed on minature models where it can be studied and photographed before actual painting begins on buildings, bridges, highways and equipment to be camouflaged. This phase of the work is especially interesting. Quoting from the *Decorator and Painter for Australia & New Zealand:*

"The model, having been made and colored, should be viewed through binoculars turned the wrong way to give the impression of distance. When one is satisfied that the best scheme obtainable has been achieved, it should be photographed. A camera for taking photographs of a factory model should be held so it points at an angle of 20° from the horizontal. This would represent the angle at which a factory could be seen by an approaching aviator flying at a height of about 10,000-ft., when he is five miles away. This is the position where he would sight his target through the bomb sights.

"Enlargements should be made of photos, and these can be used in comparison with other attempts of camouflaging the model.

"Having obtained a satisfactory camouflage scheme on the model, the next object is to carry it out on the factory itself. To do this, it is handy to draw plans of the factory on a large sheet of paper showing the factory roof and the four elevations.

"These should be marked off in squares, each square representing, say, 30x30-ft. Each square will then represent 100 square yards. In case of larger or smaller buildings, different scales may be used. The camouflage scheme is copied from the model onto the plan and the appropriate colors are roughly painted in water color. This, then is a good guide to painters when they commence work."

The principal colors used include black, slate color, green and two or more shades of brown. Flat paints are used to kill or minimize

reflection. Spray painting is the favorable method of application, not only because of its speed but because the spray lends itself to laying an irregular curved patchwork painting that has no sharply defined lines of division.

In camouflaging buildings the camouflage work is carried out beyond the walls, so it includes sidewalks, driveways and adjacent ground areas.

A study of suitable paints for covering various areas and different types of building material, such as brick, concrete, iron and steel, galvanized surfaces, asphalt roofs, glass, woodwork, etc., has also been made so that complete information on this subject is available.

Furniture Style Forecast

Overshadowed by business problems brought about by world conditions, new style trends may assume a role of secondary importace at the spring national home furnishings show which will be held at the American Furniture Mart in Chicago, May 5 to 10, 1941. Shortened lines will give manufacturers little opportunity to launch any outstanding new style developments, it is believed, although ingenious substitutions will be of utmost interest.

While the style picture is not expected to change materially, certain trends are expected to crystalize. Accordingly it is anticipated that—

1) The Federal American trend, with its patriotic background, will gain momentum, and in many instances will replace Regency groupings now on the wane in certain price groups.

2) The modern influence will continue to dominate all periods, many of the new period pieces combining the functional features first inaugurated by the contemporary trend.

3) All periods will show increased simplification, depending upon their simple lines for distinction and beauty.

4) Modern or contemporary styling, in its own right, will continue to be the leading trend, and new groupings will not only emphasize both light and dark finishes in a variety of shadings but will employ many figured cuts of cabinet woods instead of concentrating on one or two types of grains.

5) Veneers used only sparingly

Finish Coat for Polished Metals—We believe that in the near future there will be an increased use of polished metals finished with lacquer. It is now possible to produce lacquer as durable as a plated coating; lacquer as tenacious and flexible as metal itself; lacquer that does not discolor, embrittle, or deteriorate on aging or weathering for a surprisingly long time.

As a result of considerable experience with non-ferrous metals, we have produced a lacquer that not only protects, but also has the important feature of adhering to the metal when it is stamped, drawn, knurled, or rolled. We believe we have produced a finish that overcomes completely the repellant forces always present on the surface of every polished metal, as this lacquer has a polar affinity for this monomolecular films of absorbed complex oxides and carbonates.—M. J.

in the past five years and which have been lying in warehouses will be put into service and many rare woods, absent from the furniture field for many years, will return.

6) Plastics used in many different forms and treatments will be an outstanding phase of the market, and will pioneer many new developments which will have reverbrations for many years to come.

7) Glass and mirrors will be used in increasing quantities.

8) Lacquer will add its colorful note to many new lines, and many brightly colored novelty pieces will make their debut.

9) The South American influence will be stressed in many types of groupings. — THE AMERICAN FURNITURE MART.

Remove Obsolete Fire Extinguishers

Fire extinguishers that have outlived their usefulness should be discarded. Otherwise they may fail in the hour of need and let fires that should have been extinguished get out of control.

Age, in itself, does not disqualify a fire extinguisher. Many a 20-year-old extinguisher, that has been properly maintained, is just as good today as it ever was. In general, however, old fire extinguishers should be inspected by competent extinguisher service men, and, perhaps, subjected to special tests in order to determine their fitness for further use.

Even fairly new extinguishers may be defective because of corrosion, freezing, or rough handling, and cases are known where the shells have been worn too thin through excessive polishing. Such extinguishers should be removed from service, as it is uneconomical to attempt to repair them.

Special attention should be paid to extinguishers that do not carry the Underwriters' Laboratories inspection label. Many of these were made without reference to standards now accepted and may prove unreliable.—SAFETY RESEARCH INSTITUTE.

Tumble Finishing

Inquiries continue to come to INDUSTRIAL FINISHING for information about applying finishing materials by the tumbling process. This method simply involves placing a large number of small parts or products (usually small wood turnings) in a barrel or drum, pouring in a quantity of finishing material and rotating the closed drum for several minutes—until the liquid material is uniformly spread over the exposed surfaces of the parts being tumbled.

This process serves very well for certain types of work, for example, for staining, coloring, waxing or polishing small wood turnings which are of a shape that lends itself to tumbling. In some cases, we understand, an enamel coat can be put on this way. In other instances small metal parts are coated by tumbling, then spread out in wire mesh trays and put through an oven.

The exact technique by which a passable or satisfactory coating can be applied by tumbling, is learned chiefly through experience. Of course, some information on this subject has been published in past issues of INDUSTRIAL FINISHING magazine. Information can also be obtained from manufacturers of tumbling barrels and from manufacturers of tumbling finishes. For

example, one of the latter replied to a typical tumbling inquiry as follows:

"It is quite possible that we can be of service in this connection, as we furnish tumbling lacquers to a number of manufacturers. The tumbling method of application is best suited to turned or rounded wood articles, but is sometimes adaptable to other forms and materials.

"We are sending you a printed description of the tumbling process, a blueprint showing the type of tumbling apparatus which we find gives good results, and a photograph showing barrels made from this blueprint. The barrels shown in the photograph are only half the diameter specified in the blueprint. The larger diameter barrels produce better results, as the frictional heat developed by a larger number of pieces rubbing against each other, helps in making the finishing material flow out smoothly.

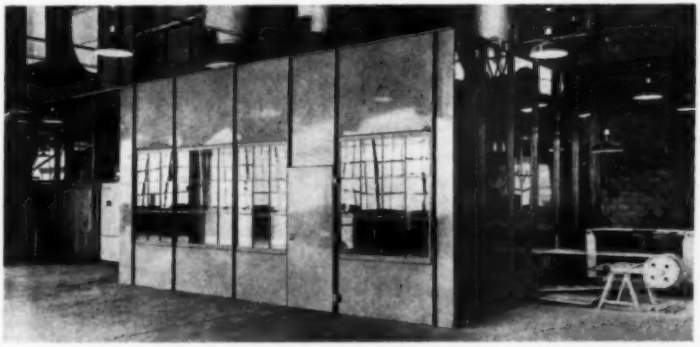
"As a rule, the smoothness and luster of a dipped or sprayed finish should not be expected in tumbled work. We are also sending you several small samples of pieces which show a typical tumbled finish and you can be guided by your examination of these in judging whether the finish is satisfactory for your purpose . . ."

INDUSTRIAL FINISHING Magazine will be glad to direct those interested in tumbling finishes to manufacturers of materials that are suitable for application by this method.

"First Quality" Porcelain Label

An instant success without parallel in the history of the kitchen furniture field has been scored by the "First Quality" label of the Porcelain Enamel Institute which was introduced in October, 1940, according to Charles S. Pearce, managing director of the Institute.

The label is now appearing on more than 80% of the porcelain enamel table tops on kitchen tables and cabinets, breakfast and dinette sets manufactured in this country. It guarantees that the manufacturer has conformed to the Porcelain Enamel Institute's specifications in producing the table top, and further guarantees that the top will pass standard tests for resistance to heat, acids, and chemical action of foods and cleaning agents.



The modern trend in all spray finishing operations is to take as much care of the air supply system as the air exhaust system. This photograph shows a cable-type conveyor running into a completely enclosed spray room containing the automatic reciprocating-arm apparatus for spraying flat ware. Photograph by courtesy of Binks Mfg. Company.

OH FUDGE!

How many times have you discovered that wood bleaches and chemicals offered as substitutes, wouldn't bleach your wood?

FORGET IT

Once you tell us your bleach troubles you can feel happier because we can give you certain, predictable results with **CUSTOMBLEACH** and Kenwood Laboratory service.

WHY WAIT?

Would you like to try our Custombleach and service? Tell me what wood you want to bleach, how light you want it, or send a panel to

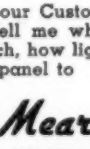
Kenneth O' Meara

KENWOOD BRANDS LABORATORY

Asheville, N. C.

STICK SHELLAC

SPECIAL GIFT OFFER



Unequalled for filling holes, scratches, mars on wood, metal, marble. FREE Electric knife with 12 doz. order. Write for color card.

M. L. Campbell Co.

706 East 19th St. Kansas City, Mo.

Explosion-Resisting Motors

A new leaflet describing fan-cooled explosion - resisting motors is announced by Westinghouse Electric & Mfg.Co., East Pittsburgh, Penna. This descriptive data leaflet discusses the application of large motors in Class 1, Group D hazardous locations. Ventilation and explosion-resisting principles are explained, and motor parts are described.

Frame size and horsepower data for use on 3-phase, 60-cycle lines are given, together with physical dimensions and section viewing a 32-frame motor.

Copies of descriptive data 3706.1 may be secured from department 7-N-20, Westinghouse Electric & Mfg. Co.

Development of Real Finishing Foremen

* A number of discussions have been published regarding future finishing foremen, how few of them are available, and how to educate new ones. Many men learn the trade thoroughly but lack ability and courage to take on the responsibility of a foremanship. I recall an instance that occurred several years ago. In a shop where the foreman resigned to take a better paying position, the management knew it had several good finishers in the shop and decided to promote one of them to the position.

One of the two best finishers was selected. He was a good finisher in his own right and had learned the job from the ground up. But from the first week on, production fell off. Things became more lax each day. Why? This new foreman just could not talk to his men or explain what he wanted. He was of a modest retiring nature, and regardless of how much he knew, he could not manage his men so that his deparmtent would produce satisfactory results.

Finally a change was made. The other man was given the foremanship on trial, to see what he could do. He also was a good finisher, but he fell down on the job. Why? Because he knew the men so well that he couldn't enforce orders—couldn't correct his friends, or tell them when they were wrong. He lacked courage to assume the responsibility connected with a fore-

* Guest Editorial . . . Many readers can write an excellent editorial—two or three paragraphs that present a timely suggestion or valuable idea which will stimulate real thought on a live subject. The Editor welcomes guest editorials and pays for those that are published.

man's job and was too "thin skinned" to be told by the manager about his mistakes.

So, regarding the future of foremen, I think there are many experienced men who would make excellent foremen if they would only show a little more of the pioneer spirit and enough backbone to go out into the world and try and sell themselves as an assistant foreman in any shop they can get into. This way they will get some actual experience and learn some of the responsibilities that go with the job. When they feel sure they are qualified, they can try to get on as a foreman. They shouldn't make the mistake of thinking that they can always locate in the home town. In fact, it is sometimes better to go elsewhere, especially if a man is inclined to be timid about assuming responsibilities and giving orders.

This kind of decision and action calls for more backbone and a spirit of daring. When a man does get on as a foreman finisher he should never relax in the belief that his position is safe. It is essential to keep on plugging and learning every day, reading and listening to other finishers. This will always give him some valuable information.—H. DEAN.

Call Service Men; They'll Show You Better Methods

One of the greatest sources of quick information about the latest developed methods for all operations in the finishing department is found in the service men, demonstrators and representatives of progressive concerns that manufacture and supply finishing materials and equipment. Call on these men whenever you have a problem to solve, a trouble to overcome, or an improvement to make. Most of them have a remarkable background of experience, training and ability. They are always learning something new and have been doing so for many years. They have their companies' products to sell or exhibit, it is true, but you are not obliged to buy them. In fact, unless you can use these products effectively and profitably, they will not be recommended. After all, every transaction, to be really satisfac-

Free Book on FINISHES

Tells all about new finishes. Shows two ways to get body and economy of varnish with speed of lacquer. Many other valuable suggestions. Write for your copy today.

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706 E. 19th St., Kansas City

Give your product a *distinctive* appearance with . . . . **FLOCK**

You can make *your* product stand out from others by using RAYCO flock. Let us tell you how to adapt FLOCK to your product. Our 4-Star line of rayon, cotton and cellophane flocks afford wide selection.

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Special Industrial Formulas
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tory, must be pleasant and profitable to both the buyer and the seller.

Practically all of the concerns supplying materials and equipment to the industries served by this publication are substantial permanent firms of high integrity. They are striving to service the inquiries of an increasing number of customers, with products of better quality, and they employ service men and demonstrators to show old customers and new ones how to use these improved products with greater effectiveness and economy. It will pay production executives to be liberal with the time and courtesies extended to these men. They can often make suggestions that will save even a small concern thousands of dollars a year.

Style Show in Chicago Will Exhibit New Furniture

A style show of home interiors, which it is predicted will revolutionize consumer demands in furniture, will be one of the features of the 1941 National House and Garden Exposition to be held at the Coliseum in Chicago, April 19th to 27th, it was announced by John A. Servas, managing director of Chicago's 6th Annual Home Show.

One of the most sensational displays in the home interior style show will be an exhibit of plastic furniture for dining rooms, bedrooms and nurseries, all within the price range of the ultimate consumer. Featuring the only laminated plastics on the market in the world today, the furniture will offer an entirely new feeling in color and design. With a surface 70 times as strong as wood, the new plastic furniture is impervious to acids, alcohols, and even varnish remover. It is almost impossible to scratch, mar, chip or burn. A lighted match can be dropped on the surface without leaving a mark.

Another interesting furniture display will be two groups of living room, dining room and bedroom sets; one to be done in solid elm with contrasting leather trim in the Honeymoon Modern pattern designed by Gilbert Rhode and exhibited at the New York World's fair; the other to be a handsome group in 18th century mahogany.

Many furniture designs rooted in American culture will be emphasized. There will be a living room group in American Provincial made of chestnut and oak and displays with a homey feeling in the rustic influences for farmhouses, summer houses and rumpus rooms.

A model kitchen with breakfast nook, planning desk, and the latest tables and chairs will be shown. One of the most unusual recreation room displays at the exposition will incorporate a bridge and poker table, a table tennis table; home bar, settes, and chairs. Phyllis Van Bromund, prominent designer, will be present to advise visitors on interior decorating problems.

Thirty-six feet of all-electric kitchen equipment will be displayed, including all the newest modern gadgets such as a new appliance on which steaks can be broiled at the table and served piping hot.

Masking for Wide Color Bands

OUR method of masking for color bands may be in common usage in other establishments, but I have never seen it described in INDUSTRIAL FINISHING Magazine. In comparison to certain other methods, it saves one operation and one handling of the products being painted.

Suppose we have a number of sheet-metal cabinets like the one illustrated in Fig. 2. Specifications call for a baked synthetic primer and a baked synthetic top white coat, with black synthetic color band ¾-in. wide extending around the top edge. Here is the way we do it:

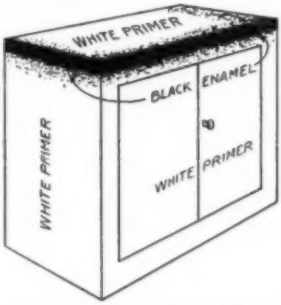

Fig. 1—First, white primer is sprayed on the bare metal, skipping or almost skipping the area that is to receive the black band. Then the operator lays aside the gun with which he sprayed white primer, takes up a cup gun containing black enamel and sprays where the black band is to show. He oversprays some on the wet white primer, of course, but this does no harm. Then the cabinets are placed in an oven to bake the finish.

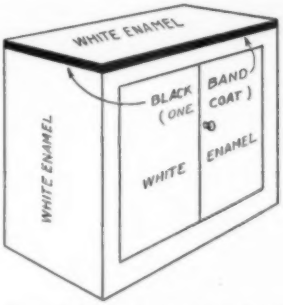

Fig. 2—Before the top coat of white enamel is sprayed all over the black and white cabinet, shown in Fig. 1, a band of masking tape (the exact width of the required color band) is placed in position to mask out the color band instead of the background.

Spray white primer all over the cabinet, but skip or skimp it where the black color band is to be.

For Finer Finishes
Write for FREE Catalog Today
M. C. CAMPBELL Company
"Fine Finish Leadership for 25 Years"
706 EAST 19TH ST. KANSAS CITY, MO.

GRAINING ROLLERS
CUSTOM BUILT
Let us help you with your graining problems.
We specialize in Graining and Varnish Rollers.
GRAINING ROLLER CO.
1121 Cavalry Ave., Detroit, Mich.

NICKEL SHORTAGE MAY INCREASE USE OF BRASS PLATING

Rich Golden Finishes Easily Obtained with SEA-LAC Hi-Gloss Brass Lacquer and SEA-LAC Gold Dye Brass Dip

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We shall be glad to send you liberal production samples of SEA-LAC Hi-Gloss Brass Lacquer and SEA-LAC Gold Dye Brass Dip. Try them out and **compare** the results with your present finish.... for clarity of film, tensile strength, adhesion, resistance to abrasion, gloss retention, and color performance.

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DURALAC CHEMICAL CORP.
84 LISTER AVENUE NEWARK, N. J.

SEA-LAC
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Then, while the cabinet is still in position on the turntable or conveyor (and while the prime coat is still wet) our spray operator picks up a cup gun loaded with black enamel and sprays the black where the color band is to be. He does it quickly and free hand, letting the black enamel overspray onto the white primer coat, as shown in Fig. 1. Of course, if it were necessary or desirable, he could use a portable shield (like a plasterer's trowel, for instance) and hold the overspray to a minimum, but in our work this isn't necessary.

Now, with both the white primer and black band enamel sprayed on, the cabinets are ready for the oven. We usually bake this first coating for 30 minutes at 325°F. When the cabinets come from the oven, the white primer will be a dark ivory color, but this is not particularly objectionable in our work.

Next, we mask out the color band, which is much easier and quicker than masking out the background. We use masking tape that is ¾-in. wide (for the ¾-in. band), putting it in place right over the black enamel coat. With the color band masked, we are ready to spray the white enamel top coat, spraying same all over the cabinet, including the masking tape.

We are careful about the viscosity of our material and we spray only enough to give full coverage, so that there will be no runs, sags or wasteful piling up of material at any point. As a result, we can peel off the masking tape immediately after spraying, and we get a clean-cut line of division at the edges between the black band and the white enamel top coat. A trip through the oven to bake the white enamel completes the job. We bake

this top coat for 30 minutes at 300°F.

A word of caution here, about the use of masking tape: I have found that it is desirable to spray soon after taping, and then strip off the tape soon after spraying, especially during hot weather. Otherwise the tape may leave an objectionable film on the color band.

The method just described will apply for single or multiple color bands, positioned anywhere on the surfaces of cabinets.

If the specifications call for only one-coat work, I spray on and bake only the color band area, leaving the remainder of the cabinet bare. Then I mask the color band or bands and spray on a coat of white enamel all over the cabinet, strip off the masking tape, and send the cabinet into the oven. The baking time on one-coat work (synthetic enamel) is usually at least 25 minutes at 300° F. or 45 minutes at 250° F.—J. G. S.

Classified Advertising

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One J. O. Ross Engineering Corp. steam heated baking oven, insulated panel construction. Clear inside dimensions 11'6" wide, 7'0" high, 6'0" deep, two doors in front extending along the 11' 6" wide dimension. Complete with all necessary heating and ventilating ducts, fan and motor, intake filters and exhaust stack. Temperature controlled by Foxboro heat recording instruments. Temperature up to 275 degrees. Practically brand new. Address IF-852, care Industrial Finishing.

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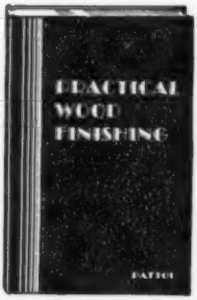
A well established wood finish manufacturer has an opening for a high type salesman. We are only interested in a man with good experience, good personality, and high moral character; one that could give us intelligent and constructive representation. State experience and past or present connections. Our sales force know about this advertisement. Address IF-849, care Industrial Finishing.

PRACTICAL WOOD FINISHING

The Most Complete Handbook On Finishing Fine Woods Ever Written

Tells EVERYTHING you need to know about Wood Finishing. Includes types of unfinished furniture, choice of finishes, brushes, accessories, precautions, natural finishes, staining, filling and bleaching, varnish, enamel or paint finishes, finishing with a spray gun and many other fascinating practical subjects. Also includes complete section on furniture repairing and refinishing. Four pages of 32 different foreign and domestic woods illustrated in natural colors. 112 pages fully illustrated.



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222 East Ohio St. Indianapolis, Ind.

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I have just received my March issue of "Industrial Finishing". It contains several interesting and informative articles. For instance, the illustrated article by Paul Wallace about Clear Wood Lacquers. I have always had a vague idea of what went into lacquer formulations, and this article is very enlightening, as it should be to nearly everyone else in the finishing game.

Also, the article on fillers, by F. W. Worth, should be read and digested by everyone in the furniture industry.

This F. Hagan (pages 74 and 83) seems to be in the casket line. If so, I would like to have his address. From the two items he wrote it seems that he is engaged in quality work.—O. C. L.

Knuckle Down

Yes, this is the time of the year when the boys begin to Knuckle Down in their marble games . . and it's also the time of year when finish users have to Knuckle Down to whip finishing troubles, especially blushing and blooming. However, users of O'SHELAC will find their blushing and blooming troubles reduced to a minimum, because this fool-proof foundation material positively will not blush or bloom in any kind of weather. It is alcohol-proof and waterproof. Try five gallons at the drum price and if your test is not satisfactory, you are not obliged to pay for the five gallons.

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INDIANAPOLIS, INDIANA

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● One of our Synthetone customers finishes his furniture with a coat of sealer and a coat of SYNTHETONE No. 1-296 . . .

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At it enters the oven (140° F.)

It comes out at He rubs

and polishes the finish at

sees the furniture crated; and

it is on its way to his customers at

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